Sub-ordo III. TUBITELARIÆ.

Syn.: 1817. "Tubiteles" Latr., *in* Cuv., Règne Anim., III, p. 81.
1823. Textores Sund., Gen. Aran. Suec., p. 10.
1825 Tubitelæ Latr., Fam. Nat. du Règne Anim., p. 314.
1833. Drassides Sund., Consp. Arachn., p. 17.
1833. Araneæ Tubitelariæ Perty, Delect. Anim. Art. Bras., p. 192.

The best way of briefly characterizing the *Tubitelariæ* is perhaps the following: all known spiders, which cannot be classed under any of the other sub-orders, belong to this! — Their ordinary form and appearance are too well known to need describing here; but within this polymorphous group we meet with transition-forms to many different families, not only of *Retitelariæ* and *Territelariæ*, but also of *Laterigradæ*, *Citigradæ* and *Saltigradæ* — indeed of all the other sub-orders, except the *Orbitelariæ*. It is probably impossible to mention any sure characteristic, that at once distinguishes these spiders from all the other sub-orders, with which they are thus related: I have therefore instead of this endeavoured, in the case of each of these latter, to indicate such marks of distinction as appear to me decisive of the limits between them and the Tubitelariæ, and I refer to what is said on this subject under the heads of these sub-orders as well as under the different families of the Tubitelariæ.

The *Tubitelariæ*, as we already know, correspond to Latreille's *Tubitelæ*, but certain of the genera included by us in this division have been otherwise classified by other authors. *Uroctea* is often assigned to the *Inæquitelæ* or *Retitelariæ*, *Filistata* again to the *Territelariæ*, *Zora* to the *Citigradæ*, etc. To this we shall return in treating of the different families. — The Tubitelariæ seem, as we have also had occasion to observe, to be the lowest sub-order among spiders, that in fact, from which the others have mediately or immediately been developed. It may be divided into several families, which do not however all seem to be very sharply defined. To the usually received three European families, *Agalenoidæ*, *Drassoidæ* and *Dysderoidæ*, we add for the European fauna three more, *Urocteoidæ*, *Hersilioidæ* and *Filistatoidæ*, which 6 families we characterize as follows:

I. Stigma tubi trachealis utrinque pone stigma sacci trachealis (pulmonalis) in latere ventris non adest. Oculi sæpissime 8.

A. Tarsi articulo unguifero aucti. Mamillæ superiores reliquis multo longiores, articulis trinis aut binis: subtus tubulis textoriis præditæ. Series oculorum 8 ambæ recurvæ. Tarsorum ungues trini. . . . II. *Hersilioidæ.*

B. Tarsi articulo unguifero distincto carentes.

a. Pars cephalica impressionibus lateralibus a parte thoracica sæpissime distincta. Mamillæ superiores inferioribus plerumque multo longiores.

α. Cephalothorax brevis, sub-reniformis vel inverse cordatus, parte cephalica parva. Mamillæ superiores reliquis multo longiores, articulis binis: 2^do longo, compresso. Mandibulæ parvæ, debiles. Maxillæ in labium valde inclinatæ. Oculi 8. Tarsorum ungues trini. . . . . I. *Urocteoidæ*.

β. Cephalothorax oblongus, parte cephalica majore, sæpissime elevata, convexa. Mamillæ superiores reliquis plerumque longiores et tum subtus tubulis textoriis præditæ. Oculi 8, rarissime (in gen. *Haditis*) nulli. Tarsorum ungues trini (excepto in gen. *Agræca*). . . . . III. *Agalenoidæ*.

b. Pars cephalica a parte thoracica non distincta. Mamillæ superiores inferioribus non vel parum longiores.

α. Mandibulæ inter se liberæ, ungue mediocri vel longo. Labium non cum sterno coalitum. Oculi 8, rarissime (in gen. *Thysa*) 6. Ungues tarsorum bini. . . . . IV. *Drassoidæ*.

β. Mandibulæ versus basin inter se unitæ. Labium cum sterno coalitum. Oculi 8. Ungues tarsorum trini. . . . . VI. *Filistatoidæ*.

II. Stigmata 4, bina in utroque latere ad basin ventris: anteriora saccorum, posteriora tuborum trachealium. Oculi 6, rarissime (in gen. *Stalita*) nulli. Ungues tarsorum trini aut bini. . . . . V. *Dysderoidæ*.

Fam. I. UROCTEOIDÆ.

The few spiders belonging to this family appear to me to stand just upon the boundary-line between Tubitelariæ and Retitelariæ, and might with almost equal reason be attributed to either of these sub-orders. By their ordinarily short extremities, and in a certain degree also by their general appearance, the Urocteoidæ exhibit an approach to the more short-legged forms among the *Theridioidæ*, e. g. *Asagena* and *Euryopis*. The small mandibles united towards the base show their relationship with the *Scytodoidæ* and *Filistata*. With the last-named genus and the *Enyoidæ* they agree in the structure of the female's palpal claw, and with the Enyoidæ also in the position of the eyes (the 8 eyes form two transverse rows, curved forwards); but they differ from them in the absence of a separate claw-joint on the tarsi, in their entire general appearance, and especially in their spinners. (Conf. p. 106). We class them among the *Tubitelariæ* principally because the *superior* (posterior) *spinners are considerably longer than the others*, and are, at least

in *Uroctea*, *along the underside of the elongated 2nd joint provided with spinning-tubes*, thereby plainly showing the relationship of these spiders to the *Hersilioidæ* and *Agalenoidæ*.

That they cannot however be united with either of these two families, follows from certain peculiarities in their organisation. The cephalothorax is short, reniform or inversely heart-shaped. The first joint of the superior spinners is very short, whereas the second is long, *compressed, and almost lancet-formed. The anus is surrounded by a double crown of a peculiar kind of bristles*, which, as far as I am aware, has not been found in any other spider, and whose functions are unknown [1]). Respecting the different views, that have previously to the present time been maintained on the subject of the systematic position of the Urocteoidæ, we refer to what has been stated above, p. 105.

Beside *Uroctea* Duf. or *Clotho* (Walck.), I include in this group only the genus *Œcobius* Luc. [2]). That the 6-eyed genus *Sicarius* Walck. (*Thomisoides* Nic.), which Simon [3]) refers to his "*Clothéiens*", i. e. our *Urocteoidæ* and *Enyoidæ*, should belong to that group, seems to me highly improbable; I imagine that it ought to be referred to the *Thomisoidæ*, with which also according to Gay and Nicolet it is most nearly related [4]).

Uroctea and *Œcobius* are easily distinguished in the following manner:

1. Oculi omnes rotundati, convexi. Cephalothorax sub-reniformis. Pedes robusti. Mamillæ superiores subtus tubulis textoriis vestiti. . . 1. *Uroctea.*
2. Oculi intermedii postici sub-trianguli, deplanati. Cephalothorax inverse subcordatus. Pedes graciliores. . . . . 2. *Œcobius.*

Gen. 1. UROCTEA Duf. (1820).

Deriv.: *οὐρά*, tail; *κτείς*, comb.

Syn.: † 1809. Clotho Walck., *in* Latr., Gen. Crust. et Ins., IV, p. 370.
1820. Uroctea Duf., Descr. de cinq Arachn. nouv., p. 198.

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1) Dufour, who did not succeed in observing any spinning-tubes on the spinners of *Uroctea*, and accordingly supposed that these organs were not the true spinning apparatus, believed that "les véritables filières" were to be found between the circles of bristles, and that the bristles themselves "servent de peigne ou de carde pour enchevêtrer les fils dont l'araignée fabrique sa demeure." (Descr. de cinq Arachn. nouv., p. 200).

2) Explor. de l'Algérie, Arachn., p. 232.

3) Hist. Nat. d. Araignées, p. 156.

4) Gay, Hist. fis. e. pol. de Chile, Zool., III, p. 351.

1837. Clotho WALCK., H. N. d. Ins. Apt., I, p. 635 (*ad part.*: "1e Fam. Les Uroctées, *Urocteæ*").

1864. „ SIM., H. N. d. Araignées, p. 152.

Type: *Uroctea Durandii* (WALCK.).

Before this genus of spiders received the name of *Clotho*, that name had already (in 1808) been appropriated by FAUJAS DE ST. FONDS to a genus of shells (= *Saxicava* FLEUR.), and had therefore here to be replaced by the more recent, synonymous denomination *Uroctea*, given by L. DUFOUR. (Conf. p. 9, note 2).

In *U. Durandii* the tarsal claws are coarse, strongly curved, broad at the base, and have from the base to a little beyond the middle about 10—15 long stout comb-teeth, the points of which lie in an almost straight line. The inferior claw is comparatively small, with *one* tolerably long tooth near the base. The female's palpal claw is very strong, curved almost into a half-circle, with about 10 strong blunt teeth, gradually, but slightly increasing in length when reckoned from the base, where they are very short.

The second joint of the superior spinners forms in this species (the only one of the genus, with which I am acquainted) an angle with the short basal joint, and is directed obliquely upward; it is of considerable length and strongly compressed from the sides, almost lancet-formed, curved upwards and inwards, rounded at the extremity, without any trace of a separate lamina there; the spinning-tubes form a narrow, close band beginning at the apex of the spinner and continued throughout the entire length of its inferior surface; they are cylindrical, small, and very numerous. The anterior or inferior spinners are short, with a plainly visible but short 2nd joint. The intermediate spinners are very small.

Gen. 2. ŒCOBIUS LUC. 1845.

Deriv.: *οἰκόβιος*, living in houses (*οἶκος*, house; *βιόω*, live).

Syn.: 1845. Œcobius LUC., Explor. d. l'Algérie, Arachn., p. 101.
1847. „ WALCK., H. N. d. Ins. Apt., IV, p. 386.
1864. „ SIM., H. N. d. Araignées, p. 157.

Type: *Œcobius domesticus* LUC.

This genus was created by LUCAS loc. cit. for two small spiders from Algeria, *Œc. domesticus* and *Œc. annulipes* LUC., and were reckoned by him among the genera of spiders that have but *six* eyes. SIMON, who

has discovered both these species in Spain, and has thus enriched the European Fauna with this interesting genus, has had the kindness to send me a specimen of each of them, whereby I have been enabled to observe, that this genus, as well as *Uroctea*, has 8 eyes, and not only 6, as Lucas and all others who mention it, have stated. The posterior central eyes, which were supposed to be missing, have however quite a different appearance from the rest. They are posited much nearer to the lateral eyes than to each other, and are of an oblong triangular form, with the longest side turned towards the lateral eyes; they diverge rapidly backwards with their points, whereas the obliquely cut off base-sides diverge forwards. They also show a more or less evident transverse depression passing from the longest side to the opposite almost right angle. They are very flat, and clear as glass, and very much resemble the similarly flat and clear, oval, or almost triangular posterior central eyes of certain *Drassoidæ* (e. g. of the genera *Drassus* and *Gnaphosa*).

The anus is surrounded by a double ring of bristles, exactly as in the case of *Uroctea*. In *Œc. annulipes* the bristles of the outer ring are curved almost in the form of an ∽. I have not been able to discover any row of spinning-tubes on the underside of the superior spinners. The legs are finer and slenderer in proportion than those of *Uroctea*, especially in *Œc. domesticus;* but in other respects the species of *Œcobius* are in the highest degree similar to *Uroctea*, and Simon very justly remarks: "Un observateur peu exercé prendrait les écobes pour de très-jeunes clothos, tant l'aspect de toutes ces araignées est semblable" [1]). It having been now shown that the number of eyes is the same in both, the mutual agreement between these two genera is still more striking.

The superior tarsal claws are slender, uniformly and much curved: in *Œc. annulipes* I have found those of the 1st pair of legs armed with about 10 comb-teeth, not long, but increasing in length from the base. On the 4th pair the claws are still more slender than on the 1st, with about 8 teeth. The inferior claw has 3 teeth, the palpal claw about 12. All this applies to *Œc. annulipes* ♀.

Blackwall has, under the name of *Œcobius navus*, described a spider from Madeira, which has 6 eyes, infra-mammillary organ and calamistrum, 2 claws on the tarsi, and three-jointed (?) spinners with spinning-tubes on the underside. None of these characteristics however belong to the genus *Œcobius* Luc., and it is clear that the species described by Blackwall

1) Hist. Nat. d. Araignées, p. 158.

does not even belong to the family before us. BLACKWALL has proposed a separate family for it, which he calls *Œcobiidæ* [1]), and which we also have adopted; but as it requires a new name, we call the family *Omanoidæ* and the species in question *Omanus* [2]) *navus*. (Conf. p. 44 above).

Fam. II. HERSILIOIDÆ.

The genus *Hersilia*, which was formed (1825—27) by SAVIGNY and AUDOUIN in "Descr. d. l'Égypte" (T. XXII, p. 317 of the 2nd Edit.), is, as the reader, from the few details above given (p. 109) under the head of the family *Hersilioidæ*, is probably already aware, so peculiar, as scarcely to admit of being united with any of the other families that are referred to the Tubitelariæ. By SAVIGNY and AUDOUIN *Hersilia* was placed between the genera *Arachne* (*Nyssus* WALCK.) and *Erigone*. WALCKENAER places this genus between *Ctenus* and *Sphasus*, and refers it to his "*Coureuses*" or LATREILLES *Citigradæ*, on account of a certain similarity, in the position of the eyes, to *Dolomedes* and *Sphasus* [3]). It has the same systematic position in the works of LUCAS — who nevertheless has remarked that, in his opinion, it belongs to another "section" or ought to form a new one [4]) — as also in SIMON, who formed for it a "tribus", "*Herséliens*" in the family "*Lycosiformes*" [5]). DUGÈS [6]) reckoned *Hersilia* to his "*Micrognathes*" or "*Scythodés*", SUNDEVALL to his *Drassides*, i. e. our *Tubitelariæ* [7]), C. KOCH to the family *Agelenides* among these [8]). It seems to me that the *Hersilioidæ* stand nearest to the *Agalenoidæ*, with which they agree in the structure of the spinning organs (especially in the spinning-tubes appearing not only on the extremity but along the underside of the superior spinners), and the *Urocteoidæ*, which they also resemble in the structure of the parts of the mouth: in that respect they also approximate to the other spiders

1) *Œcobius navus* was first described in 1859, in "Descr. of newly disc. spid. capt. by J. Y. Johnson" (Ann. and Mag. of Nat. Hist., 3 Ser., IV, p. 258); the family *Œcobiidæ* was formed in 1862, in "Descr. of newly disc. spid. from the Isl. of Madeira (ibid., 3 Ser., IX, p. 382).

2) *Omanus*, mythol. prop. name.

3) Mém. s. une nouv. Classif. d. Aran., p. 438; — Hist. Nat. d. Ins. Apt., I, p. 202 and 372.

4) Observ. sur les Aran. du genre Hersilia, p. 4.

5) Hist. Nat. d. Araignées, p. 343. 6) Observ. sur les Aran., p. 160.

7) Consp. Arachn., p. 22.

8) Uebers. d. Arachn.-Syst., 1, p. 14; ibid., 5, p. 25.

distinguished by Dugès as "*Micrognathes*", accordingly to the *Filistatoidæ*, *Scytodoidæ* and *Enyoidæ*, of which the two last-named families have a separate claw-joint on the legs, like the *Hersilioidæ*. With the *Citigradæ* this family seems to me to be far less nearly related.

Only one species of this remarkable family has, as far as I am aware, as yet been met with in Europe, viz. *Hersilia oraniensis* Luc., which Simon has found in Spain, and of which he had the kindness to send me a specimen (a young ♂) under the name of "*Hersiliola oraniensis*". As this species differs considerably from the typical species of the genus *Hersilia*, we form for it a new genus, with the name proposed by Simon, *Hersiliola*, and we define it thus:

1. Tarsorum articulus unguiferus ipso tarso multo brevior. Mamillarum superiorum articuli bini: primus et secundus sub-æquales. Pedes 3^tii paris reliquis non valde breviores. . . . . 1. *Hersiliola*.

Gen. 1. HERSILIOLA n.

Deriv.: Dimin. of *Hersilia*, histor. prop. name.

Syn.: 1845. Hersilia Luc., Explor. de l'Algérie, Arachn., p. 127 (*ad partem*).
1847. „ Walck., H. N. d. Ins. Apt., IV, p. 404 (*ad part.:* "2^e Fam. Les Orthopodes, *Orthopodes*").
1864. „ Sim., H. N. d. Araignées, p. 343 (*ad partem*).

Type: *Hersiliola oraniensis* (Lucas).

In *Hersilia caudata* Sav. et Aud., the typical species for *Hersilia*, the claw-joint of the tarsus is *as long* as the tarsus itself, the superior spinners extraordinarily long, 3-jointed, and the 3^rd pair of legs in an unusual degree shorter than the other legs; even the armature of teeth on the claws is quite different from that of *Hersiliola oraniensis* [1]). Lucas has himself explained the properties that distinguish *H. oraniensis* from the other known species of *Hersilia;* he formed for it a separate division of that genus, characterised by the shorter spinners and comparatively long 3^rd pair of legs, but considered these characteristics as not of sufficient importance to justify the formation of a new genus [2]).

In *Hersiliola oraniensis* the superior spinners are about double as long as the inferior, and consist of two cylindrical joints about twice as

1) Conf. Descr. de l'Égypte, (Éd. 2:) T. XXII, p. 317 et seq.
2) Explor. de l'Algérie, Arachn., p. 127.

long as they are broad, and of about equal length, the second joint being somewhat conically terminated. This second joint on the underside exhibits a row of (about 6) unusually long and stout spinning-tubes, about as long as the medium diameter of the joint, and terminating with a short, almost cylindrical, truncated spinning-bristle. A similar large spinning-tube is situated just under the extremity of the first joint. Moreover the end of that joint and the whole underside of the 2nd joint are occupied by a number of shorter and much finer spinning-tubes, which also terminate in a somewhat short, fine spinning-bristle. At the apex of the spinner a few spinning-tubes of different sizes are observable. The inferior spinners are as thick as the superior, but scarcely half as long, somewhat tapering; their second joint is extremely short, the apex thickly covered with small spinning-tubes [1]). The intermediate spinners are somewhat shorter, and of much less diameter than the inferior, cylindrical, with a few spinning-tubes at the apex.

The superior tarsal claws are rather weak, but large, of uniform curvature, with about 10 or 12 close-set comb-teeth, gradually increasing in length towards the extremity of the claw; the uttermost teeth are somewhat sinuated (i. e. curved a little in the form of an ∽) and divergent; the inferior claw is small, and has only *one* rather coarse and somewhat curved tooth. The claw-joint is plainly visible, a little slenderer than the tarsus, rather longer than it is broad. Inside this joint, in my specimen (a ♂ jun.) lies a new outfit of claws, ready to take the place of the old ones, which fall away when the spider changes its integument. This circumstance I have also noticed in younger specimens of species destitute of a separate claw-joint, e. g. in an *Histopona*, and it would seem therefore to be a general law, *that previous to every moult new claws are formed within the tarsus itself.* OHLERTS' conjecture, that the old claws are retained, and only their skin changed [2]), is not reconcileable with these observations, and must accordingly be considered as erroneous.

In *Hersiliola oraniensis* (and perhaps in other species of the same family) it is a remarkable fact, *that the palpus also of the male is armed with a pectinated claw.* This is at least the case in the ♂ jun. of this species in my possession. Only one similar case was previously known, that namely of *Dolomedes fimbriatus*, in which OHLERT has observed a pectinated claw at the extremity of the male's as well as the female's palpus [3]).

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1) These tubes are cylindrical, narrow, and apparently destitute of a spinning bristle at the tip (?).

2) Klauenbild. d. Preuss. Spinn., p. 2. 3) Ibid., p. 12.

Fam. III. AGALENOIDÆ.

Syn.: 1837. Agelenides C. Koch, Uebers. d. Arachn.-Syst., 1, p. 13 (*ad max. part.*).
1852. Tubicolæ Dolesch., Syst. Verzeichn. etc., p. 14 (*ad max. part.*).

The Agalenoidæ were detached as a separate family from Latreille's *Tubitelæ* or Sundevall's *Drassides* by C. Koch 1837 (loc. cit.), and that family has since been acknowledged by Blackwall, Ohlert, and others. In Walckenaer it also forms a group, "les *Tapitèles*", answering to one of our families. Westring on the other hand preserves Sundevall's *Drassides* undivided, and accordingly assigns the *Agalenoidæ* to that family. Simon has, as aforesaid (p. 33), united most of the spiders belonging to this family, together with *Linyphia* and others, into a "tribus", "*les Linyphiens*" of the family "les *Théridiformes*" — a way of classing them, which, in my opinion, is quite inadmissible. Species of the genera *Dictyna* and *Titanœca* have formerly, before their relationship with *Amaurobius* was detected, been reckoned as *Theridioidæ*, by e. g. Walckenaer (who also has described a couple of species of *Dictyna* under the head of his *Drassus*), and Sundevall, and even still by Simon and Ohlert [1]). *Hyptiotes* on the contrary, which builds a regular, geometrical net in the form of a circular sector, and is nearly related to *Uloborus* (vid. sup. p. 69 et seq.), has been erroneously referred by Ausserer [2]) and Canestrini [3]) to the *Agalenoidæ*, to which these authors, as well as Doleschall [4]), also assign *Pholcus* (and *Rachus* or *Spermophora*), which I believe to be equally unnatural. The genus *Textrix*, which exhibits sundry remarkable analogies with the *Lycosoidæ*, has sometimes, e. g. by Lucas [5]), been placed in juxtaposition with genera belonging to this latter family, which also, through the medium of *Dolomedes*, nearly approaches the *Agalenoidæ*. But it nevertheless appears to be generally admitted that the *Drassoidæ* are the nearest relations of this last-named family: the transition from the *Agalenoidæ* to the *Drassoidæ* is in fact so gradual, that the demarcation can only be made in a tolerably arbitrary and artificial manner; several genera, situated just upon the boundary-line between the two families, have therefore been referred sometimes to the one, sometimes to the other, and sometimes they have been formed into a separate family. Thus according to C. Koch the

1) Aran. d. Prov. Preuss., p. 33. 2) Die Arachn. Tirols, I, p. 14.
3) Aran. Ital., p. 65. 4) Syst. Verzeichn. etc., p. 14.
5) Explor. de l'Algérie, Arachn., p. 121: Gen. *Lycosoides* Lucas ad partem = *Textrix* Sund.

species forming the genera *Amaurobius* and *Cœlotes* belong to the *Drassoidæ*, to which also OHLERT refers the first-named of these genera, whereas by BLACKWALL and L. KOCH *Cœlotes* is assigned to the *Agalenoidæ*, and *Amaurobius* (*Ciniflo* BLACKW.) is made the type of a separate family, *Ciniflonidæ* BLACKW. or *Amaurobiidæ* L. KOCH. These spiders are classified in like manner by CANESTRINI and PAVESI [1]). *Agrœca* and *Liocranum*, which C. KOCH includes in his *Agelenides*, belong according to L. KOCH to the *Drassoidæ*. BLACKWALL refers the species of *Agrœca* to the former, those of *Liocranum* to the latter family; and so forth. — If attention be fixed exclusively on the *number (3) of the tarsal claws*, *Agrœca* must be detached from the *Agalenoidæ*, though in its whole appearance closely allied to that family, but having only *2* claws on the tarsus; if again, with OHLERT, we assume *elongated superior spinners* as the indispensable characteristic of the *Agalenoidæ*, then we are obliged to exclude not only *Agrœca*, but also *Argyroneta*, *Cybœus* and the *Amaurobiinæ*. L. KOCH, in his excellent works on the Amaurobiinæ and Drassoidæ, detaches, in company with BLACKWALL, as we have already seen, the *Amaurobiinæ* as a separate family on account of the presence of the *infra-mammillary organ and calamistrum;* he appears to consider *two-jointed superior spinners and three tarsal claws* as essentially necessary characteristics of the *Agalenoidæ*, and is therefore in doubt to what family to refer *Cybœus* [2]), which, like the Agalenoidæ, has no infra-mammillary organ or calamistrum, but has only *one-jointed* superior spinners, and on account of its 3 tarsal claws cannot be referred to the *Drassoidæ*. For my part I prefer, in determining the boundary between *Drassoidæ* and *Agalenoidæ*, to lay, in cases of doubt, the principal stress on the presence of a *distinctly marked pars cephalica* in these latter in contradistinction from the former. Not only *Cybœus*, but also *Cœlotes* appears to me much more nearly related to *Amaurobius* than to the *typical* Agalenoidæ, and I am therefore obliged to consider the presence of the infra-mammillary organ and the calamistrum, which distinguishes the Amaurobiinæ (but which also occurs in genera of the most widely differing families), as a feature of tolerably trifling importance [3]), and which barely allows the forming of a separate *sub-family* for the genera of Agalenoidæ, which are provided with these organs. As regards the superior spinners, their length varies so considerably within

1) Aran. Ital., p. 61—63.

2) Die Arachn.-gattungen Amaurobius, Cœlotes u. Cybæus, p. 4.

3) MENGE does not seem to lay any weight on the organs in question: at least he includes the genera *Dictyna* and *Lethia* (= *Ciniflo* BLACKW. ad part.) in his family *Theridiidæ* (Preuss. Spinn., III, p. 244, 249).

the limits of this family (compare, for example, *Hadites tegenarioides* and *Tegenaria cinerea (cicurea)*), that it does not appear to me unjustifiable to refer to it even genera, in which their 2nd joint is so short, that it can only have spinning-tubes quite at the *extremity* (*Amaurobiinæ*, *Argyroneta*, *Agræca*), or in which it has been reduced to a mere *flat lamina* bearing the spinning-tubes, as appears to me to be the case in the genus *Cybæus*. That the *inferior tarsal claw* should sometimes be absent within a family, in which it is generally met with, is exemplified not only in the *Dysderoidæ* and *Scytodoidæ* (*Loxosceles*) but also in the *Eresoidæ* (*Palpimanus*), and I therefore consider that I ought to aggregate *Agræca* to the Agalenoidæ and not to the Drassoidæ, although it has but two claws, for in its general appearance it seems to me to approximate much more nearly to the former than to the latter.

It cannot however be denied that the family Agalenoidæ, as I have understood its compass, comprises tolerably heterogeneous elements, and I therefore break up the European forms belonging to it into 3 sub-families, *Amaurobiinæ*, *Agaleninæ* and *Argyronetinæ*. C. Koch also divided his "Agelenides" (nearly answering to the two last-mentioned sub-families) into 3 such groups: "Eigentliche Trichter-spinnen", "Wanderspinnen" and "Wasserspinnen". The middlemost of these is an unnatural section, containing species, which ought to be distributed among the *Agalenoidæ* (: *Philoica* C. Koch) and the *Drassoidæ* (: *Anyphæna*). — We distinguish the sub-families and genera of the European fauna that belong to family Agalenoidæ according to the following scheme:

§ Nulla stigmata trachealia in medio ventris paullo pone plicam genitalem.

† Organum infra-mamillare et calamistrum adsunt. . . . I. Amaurobiinæ.

A. Maxillæ in labium sub-triangulum inclinatæ. Pedes omnes aculeis carentes.

1. Oculi laterales inter se sub-contingentes; antici eorum a mediis anticis longius (diametro saltem oculi) distantes. . . . . 1. *Dictyna*.

2. Oculi laterales et omnes oculi seriei anterioris inter se valde et æque appropinquantes. . . . . 2. *Argenna*.

B. Maxillæ sub-parallelæ.

a. Oculi laterales disjuncti.

1. Pedes saltem 6 posteriores aculeis carentes. Labium semi-ovale . . . . . 3. *Titanœca*.

2. Pedes omnes aculeati. Labium ad basin constrictum, apice truncatum vel sub-emarginatum. Oculi seriei 1mæ sub-æquales; medii postici paullo longius a lateralibus posticis quam inter se distantes. . . . . 5. *Amaurobius*.

b. Oculi laterales sub-contingentes, medii antici reliquis multo minores: medii postici inter se parum plus diametro oculi, at paullo longius quam a lateralibus posticis distantes. Pedes pilosi et setosi, non aculeati. . . . . 4. *Lethia.*

†† Organum infra-mamillare et calamistrum desunt. . . . . II. AGALENINÆ.

* Mamillæ superiores reliquis longiores, articulis binis: 2^do^ acuminato, in latere inferiore, non in apice tantum, tubulis textoriis instructo [1]).

A. Oculi 8.

a. Mandibulæ ad basin geniculato-convexæ. Mamillarum superiorum articulus 2^dus^ 1^mo^ paullo brevior vel ejus fere longitudine. 7. *Cœlotes.*

b. Mandibulæ dorso recto vel leviter modo convexæ, non ad basin geniculatæ.

α. Series oculorum posticorum, desuper visa, plus minus recurva vel sub-recta: simulque est mamillarum superiorum articulus 2^dus^ vix vel non brevior, plerumque longior quam 1^mus^.

1. Series oculorum anticorum sub-recta vel recurva, posticorum, ex quibus medii lateralibus multo majores sunt, desuper visa fortiter recurva. Cephalothorax antice carinato-elevatus, fronte prominenti. . . . . 13. *Textrix.*

2. Series oculorum anticorum procurva vel sub-recta; series posticorum, inter se parum inæqualium, desuper visa subrecurva vel recta. . . . . 12. *Histopona.*

β. Series oculorum posticorum, desuper visa, procurva vel saltem recta.

a. Mamillæ superiores et inferiores in trapezium postice paullo latius vel in aream sub-rectangulam dispositæ.

I. Series oculorum anticorum fortiter procurva.

1. Series oculorum posticorum, desuper visa, procurva. Mamillarum superiorum articulus 2^dus^ 1^mo^ longior. . . . . 11. *Agalena.*

2. Series oculorum posticorum, desuper visa, sub-recta. Mamillarum superiorum articulus 2^dus^ 1^mo^ saltem dimidio brevior. . . . . 9. *Cryphœca.*

II. Series oculorum anticorum sub-recta vel paullo procurva. Mamillarum superiorum articulus 2^dus^ 1^mo^ sæpissime multo brevior. . . . . 8. *Tegenaria.*

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1) According to BLACKWALL and some other writers, the superior spinners of these spiders consist of *three* joints; but as I have not been able to discover that the elevation, to which the joint considered by these authors as the 2^nd^, is articulated, is separated by any articulation from the abdomen, I cannot consider it as a separate joint.

b. Mamillæ longæ, superiores inter se valde remotæ, cum inferioribus in lineam transversam recurvam dispositæ, et iis fere dimidio longiores. Series oculorum anticorum sub-recta vel procurva. . . . . 9. *Hahnia.*

B. Oculi nulli. Mamillæ superiores valde longæ, articulo 2^do^ æque fere longo atque 1^mo^. . . . . 14. *Hadites.*

** Mamillæ superiores inferioribus non vel parum longiores, in ipso apice tantum tubulis textoriis præditæ.

1. Mamillæ superiores articulis distinctis binis. Ungues tarsorum bini. . . . . 15. *Agræca.*

2. Mamillæ superiores articulo 2^do^ exserto nullo. Ungues tarsorum trini. . . . . 6. *Cybæus.*

§§ Pone plicam genitalem alia plica, stigmata trachealia duo in medio ejus sita continens, ad basin ventris adest. Pedes posteriores præsertim subtus (et in lateribus) pilis longis natatoriis vestiti. . . . . III. Argyronetinæ.

1. Mamillæ superiores et inferiores eadem fere longitudine, articulo 2^do^ brevi. Series oculorum antica fere recta, postica desuper visa paullo recurva. . . . . 16. *Argyroneta.*

Dolomedes agalenoides Walck. [1]) probably forms a separate genus of this family. *Apostenus* Westr., the species of which Blackwall [2]) appears to refer to *Agalena*, and which genus also Ausserer [3]) reckons to that family, we aggregate to the *Drassoidæ*, as also *Anyphæna* Sund., which by C. Koch had been united with the Agalenoidæ [4]).

Sub-fam. I. AMAUROBIINÆ.

This sub-family corresponds to Blackwall's *Ciniflonidæ*, when we detach therefrom the genera, which belong to other sub-orders, and agree with *Amaurobius* or *Ciniflo* Blackw. only in having an infra-mammillary organ and calamistrum [5]). Ausserer places these spiders, as also we do,

1) Hist. Nat. d. Ins. Apt., II, p. 454. 2) Spid. of Gr. Brit., I, p. 151—162.
3) Die Arachn. Tirols, I, p. 151. 4) Uebers. d. Arachn.-Syst., 5, p. 26.
5) In Menge's Preuss. Spinn., Abth. III, which I received after the five first sheets of the present work were printed, several important observations on the infra-mammillary and the respiratory organs of spiders are communicated. Menge thinks (loc. cit. p. 244) that the infra-mammillary-organ answers to the small conical process (*colulus* Menge), which in other spiders is seen immediately under or in front of the spinners, and that both may be considered as a separate terminal part (*hypopygium*) of the coalesced abdominal segments (?). In at least one species of the genus *Dictyna*, *D. albo-maculata* Menge, two tracheal tubes have their

in the family *Agalenoidæ* [1]). That in the form and armature of the *claws* they agree with the typical Agalenoidæ, has already been pointed out by OHLERT [2]). Even in the cases, when the inferior tarsal claw has but *two* teeth (there are usually more), these teeth are distinguished by their form: they are long, curved, generally very pointed, and the palpal claw of the female is *at the same time* armed with several powerful teeth. The spinning-tubes are very small and short, sometimes, as in *Dictyna*, difficult to perceive. — The European species known to me may be divided into five genera: *Dictyna*, *Argenna*, *Titanœca*, *Lethia* and *Amaurobius*.

Gen. 1. DICTYNA SUND. 1833.

Deriv.: *Δίκτυνα*, mythol. proper name (of *Diana*).

Syn.: 1805. Theridium WALCK., Tabl. d. Aran., p. 72 (*ad part.:* "7e Fam. Les Minimes, *Minimæ*").
1805. Drassus ID., ibid., p. 45 (*ad part.:* 3e Fam. Les phytophiles apparentes, *Phytophilæ conspicuæ*").
1833. Dictyna SUND., Consp. Arachn., p. 16.
1833. Clubiona BLACKW., Charact. of some undescr. gen. and spec. of Aran., p. 437 (*ad partem*).
1834. Drassus ID., Res. in Zool., p. 337 (*ad part.; sec.* BLACKW., Spid. of Gr. Brit.).
[1840. Operaria..., *in* Proceed. of the Linn. Soc., I, p. 66.]
1841. Ergatis BLACKW., The differ. in the numb. of eyes etc., p. 608.
1847. Argus WALCK., H. N. d. Ins. Apt., IV, p. 500: ("Fam. des Ergatides, *Ergatides*", *ad max. part.*).
1861. Dictyna WESTR., Aran. Suec., p. 382.
1861. Ergatis BLACKW., Spid. of Gr. Brit., I, p. 146.
1864. Dictyna SIM., H. N. d. Araignées, p. 186.
1869. „ MENGE, Preuss. Spinn., III, p. 244.

Type: *Dictyna arundinacea* (LINN.).

It is BLACKWALL that we have to thank for having assigned to this genus, which had usually before been reckoned among the *Retitelariæ*, its proper place in the vicinity of *Amaurobius*, and for having united with it

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stigmata in the infra-mammillary organ, which MENGE here (loc. cit. p. 248) even calls the *tracheal area* ("Luftröhrenfeld"). Conf. our note p. 30. But in other species of *Dictyna*, *D. arundinacea* or *benigna* for inst., the tracheæ do not open in the infra-mammillary organ, but just behind the rima genitalis, according to MENGE. —. The ordinary air-sacs are said (l. c., p. 248) to be rudimentary in *D. albo-maculata*.

1) AUSSERER, Die Arachn. Tirols, 1, p. 150.

2) Klauenbild. d. Preuss. Spinn., p. 9, 18.

those species of *Drassus* Walck., which Walckenaer referred to the "5e fam., les *Phytophiles*" of that genus [1]). It is however still by Simon, Ohlert and Menge referred to the *Theridioidæ*, from which the appearance of its claws is sufficient to distinguish it; the inferior tarsal claw is in fact armed with *several* (4—6) long, curved teeth, which is never the case in the sub-orders *Orbitelariæ* and *Retitelariæ*.

As regards the name *Operaria* see below (p. 128) under the head of Gen. 5. *Cœlotes*.

Gen. 2. ARGENNA n.

Deriv.: *Ἀργεννός*, mythol. proper name.

The spider for which we have formed this genus, and which we have called *A. Mengei* [2]), seems to occupy an intermediate position between *Dictyna*, *Amaurobius* and *Hahnia*, and on a hasty inspection reminds an observer strongly of the last mentioned genus. I have but two dried specimens of it, a ♂ and a ♀ (the first much injured), which I found many years ago here in the vicinity of Upsala. It is distinguished *by the eyes of the anterior row being situated very close together, not more distant than are the lateral eyes from each other.* In the form of the maxillæ and lip, as well as in the unarmed legs, this spider is nearly related to *Dictyna*, but the form of the cephalothorax and the mandibles is much the same as in *Amaurobius*.

The breadth of the large, arched, thin-haired pars cephalica is nearly $= \frac{2}{3}$ of the maximum breadth of the cephalothorax (in ♀; it is somewhat less in ♂). The eyes are of nearly equal magnitude, the anterior central eyes a trifle smaller than the others. The anterior row of eyes is straight, the posterior, when seen from before, curved downwards, when seen from above, slightly curved forwards. The distance of the anterior series from the border of the clypeus is a little greater than an eye's diameter. The 4 central eyes describe a trapezoid broader behind; the distance between the

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1) Hist. Nat. d. Ins. Apt., I, p. 630.

2) *Argenna Mengei.* — Rufescenti-fusca, pedibus extus plus minus distincte fusco-annulatis, abdomine fusco vel nigro, sericeo-pubescenti, in dorso maculis parvis testaceis picto: primum 4, fere in quadratum dispositis, quarum duæ posteriores, majores, versus medium dorsi sitæ sunt, tum pone eas pluribus, minutis, in tres series, versus anum convergentes, dispositis.

Longit. c:a 2—2½ millim. (♂♀).

Ad Upsaliam rarissime inventa.

posterior central eyes is about an eye's diameter, and a little less than the distance between them and the posterior lateral eyes. The eyes of the anterior row, like the lateral eyes, are so near each other as almost to be contiguous. The mandibles are strong, and, seen from the side, almost pear-formed; when seen from in front, slightly tapering at the extremity, convex and somewhat projecting at the base, the length about double the breadth. The maxillæ are dilated at the base, sinuated a little inwards at the extremity, and somewhat inclined towards the lip, which is large, almost triangular, and rounded at the apex. The last joint of the female's palpus is cylindrical, not gradually tapering. Legs short, of almost equal length, hairy, but without spines. The abdomen is short, inversely ovate; the spinners are tolerably far apart (almost as in *Cryphœca*): the superior somewhat longer and thicker than the inferior, distinctly two-jointed, with the second joint slenderer and much shorter than the first. The superior tarsal claws are much curved, with about 9 very long, parallel comb-teeth of about equal length; the inferior claw is small, with *two* long, fine, curved teeth. The palpal claw has at least 3 teeth.

Gen. 3. TITANŒCA. N.

Deriv.: *τίτανος*, lime-stone; *οἰκέω*, inhabit.

Syn.: ?1805. Theridium WALCK., Tabl. d. Aran., p. 72 ("6e Fam. Les Cachées, *Abscondatæ*", *ad part.*).
1831. „ HAHN, Die Arachn., I, (*ad part.*:) p. 84.
1837. Asagena C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 13 (*ad partem*).
1850. Lathrodectus ID., ibid., 5, p. 23 (*ad partem*).
?1864. Theridium: sub-gen. Eucharia SIM., H. N. d. Araignées, p. 165 (*ad partem*).
1867. Amaurobius AUSS., Die Arachn. Tirols, I, p. 150 et 162 (*ad partem*).

Type: *Titanœca quadri-guttata* (HAHN).

I have found it necessary to create this new genus for HAHN'S *Theridium 4-guttatum* (= *Amaurobius Kochii* AUSS.; *Ther. obscurum* WALCK.?), which is widely different from both *Theridium* and *Lathrodectus*. It has in fact infra-mammillary organ and calamistrum, and is, in the form of the cephalothorax, mandibles, and parallel maxillæ, intimately related to the genus *Amaurobius*. Even the position of the eyes is almost identically the same as in that genus. In its broad, heart-formed sternum, in the absence of spines on the (6 posterior) extremities, and in its colour, it much resembles certain genera among the *Theridioidæ*, especially *Asagena*. The lateral

eyes are however still more distant than in that genus, which is probably the reason why C. Koch, after having first assigned it to *Asagena*, subsequently transferred it *Lathrodectus*.

The anterior row of eyes is very slightly bent forward, almost straight. The mandibles are a little thicker than the femora, perpendicular, their back straight, only a little convex towards the base (in ♀). The maxillæ are almost double as long as the lip, parallel, without impression, slightly rounded on the outside, straight on the inside, the apex rounded exteriorly. The relative lengths of the legs is 1, 4, 2, 3. The calamistrum is remarkably strongly developed: its bristles proceed from short, almost cylindrical nipples, directed obliquely backwards, which form a row following the superior border of the compressed metatarsus. The inferior spinners are somewhat thicker and longer than the superior, two-jointed, with very short 2nd joint. The palpal claw is armed with about 10 strong, closely set comb-teeth, pointing much forwards, and situated along almost the whole length of the claw: the superior tarsal claws, which are remarkably powerful, have about 9 stout comb-teeth directed somewhat forwards, and their free extremity is somewhat thickened in the middle; the inferior claw is small, but stout, with *three* pointed, curved teeth gradually increasing in length.

I have found several examples of this species at Kissingen in Bavaria, but only females and young males, under stones in dry chalky declivities. In these the 1st pair of legs have but *one* spine near the extremity of the thighs: according to Ausserer (loc. cit. p. 163) the adult ♂ has 8 pairs of short, knife-formed spines on the underside of the tibiæ of the first pair of legs, and the mandibles are excavated inwards and in front, as in *Dictyna*, but less distinctly. The 6 other legs are without spines.

T. 4-guttata appears then to stand about half-way between *Dictyna* and *Amaurobius*, which latter it more resembles in its habits. Both Ausserer and L. Koch [1]) have already expressed the opinion, that it ought to form an independent genus, distinct from *Amaurobius*.

Gen. 4. LETHIA Menge. 1869.

Deriv.: "*λήθια, occulta*": Menge (*λήθω* = *λανθάνω*, to be hidden).

Syn.: 1855. Ciniflo Blackw., (*ad part.:*) Descr. of two newly disc. spec. of Aran., p. 120.
1861. „ id., Spid. of Gr. Brit., I, p. 139 (*ad partem*).
1869. Lethia Menge, Preuss. Spinn., III, p. 249 (*saltem ad part.*).

Type: *Lethia humilis* (Blackw.).

1) Die Arachn.-gatt. Amaur., Cœl. u. Cybæus, p. 31.

Ciniflo humilis BLACKW. (Spid. of Gr. Brit., I, p. 145, Pl. IX, fig. 2), of which species I have myself taken a female at Pyrmont in Germany, and received English specimens from the Rev. Mr. CAMBRIDGE, differs too much in the relative size and position of the eyes etc. from the genus *Amaurobius* (C. KOCH) NOB. (*Ciniflo* BLACKW. *ad max. part.*), to be allowed to remain in that genus. This spider has recently been described by MENGE (loc. cit.) under the name of *Lethia varia*. — MENGE reckons *Lethia* to his *Theridiidæ*.

The superior tarsal claws of *L. humilis* ♀ are rather stout, much curved, strongly pectinated, with (on the 1st pair of legs) about 8—10 long straight, coarse, parallel and very close-set teeth directed a little forward; the inferior claw has two very long, curved, pointed teeth and a very small point behind them. The claw of the palpus is tolerably weak, uniformly and much curved, and armed with about 4 rather long and pointed teeth pointing forward and gradually increasing in length.

Gen. 5. AMAUROBIUS (C. KOCH). 1837.

Deriv.: *ἀμαυρόβιος*, living in the dark (*ἀμαυρός*, dark; *βιόω*, live).

Syn.: 1805. Clubiona WALCK., Tabl. d. Aran., p. 41 (*ad part.:* "4e Fam. Les Parques, *Parcæ*").
1837. Amaurobius C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 15 (*ad max. part.*).
1841. Ciniflo BLACKW., The differ. in the numb. of eyes etc., p. 607.
1861. „ ID., Spid. of Gr. Brit., I, p. 139 (*ad max. part.*).
1861. Amaurobius WESTR., Aran. Suec., p. 373.
1864. „ SIM., H. N. d. Araignées, p. 138 (*ad max. part.*).
1868. „ L. KOCH, Die Arachn.-gatt. Amaur., Cœl. u. Cyb., p. 4.

Type: *Amaurobius fenestralis* (STROM) (= *Ar. atrox* DE GEER).

Instead of the name given by C. KOCH to this genus, BLACKWALL makes use of the newer name *Ciniflo* BLACKW., on the ground, that KOCH has united under the name of *Amaurobius* species, that can never be allowed to remain together under the same generic name, nay, that in BLACKWALL'S opinion belong to quite different families [1]). That this reason cannot be admitted, is easily seen: one would thus for consistency's sake be obliged to cashier a great many good and universally accredited generic names, e. g. both *Theridium* and *Drassus*, because WALCKENAER referred to them species, which belong to the genus *Dictyna*, and consequently to another fa-

1) BLACKW., Spid. of Gr. Brit., I, p. 171.

mily than either *Theridium* or *Drassus*. In these and similar cases it is quite sufficient to detach from the old genus such species as one considers not to belong to it, and to assign to them a new generic name, as also Blackwall did, when he formed the genus *Cœlotes* of species detached from C. Koch's *Amaurobius*.

In *Amaurobius* the claws are very nearly similar in form to those of the typical *Agaleninæ*, coarse and strong, with many and long comb-teeth; on the inferior tarsal claw the teeth are sometimes 3, sometimes only 2 in number, but always long, pointed and curved.

Sub-fam. II. AGALENINÆ.

In this sub-family we combine the *typical* Agalenoidæ, characterized by having spinning-tubes distributed along the *underside* of the superior spinners [1]), and also a couple of genera standing just on the points of transition, the one to the *Drassoidæ*, and the other to the *Amaurobiinæ*, viz. *Agrœca* and *Cybœus*. We accordingly begin with the last named.

Gen. 6. CYBÆUS L. Koch. 1868.

Deriv.: *cybœus*, (a ship of burden;) thick and bellied (as such a ship).

Syn.: 1839. Amaurobius C. Koch, Die Arachn., VI, (*ad part.:*) p. 43.
1864. „ Sim., H. N. d. Araignées, p. 168 (*ad partem*).
1868. Cybæus L. Koch, Die Arachn.-gatt. Amaur., Cœl. u. Cyb., p. 46.

Type: *Cybœus tetricus* (C. Koch).

On the systematic position of this interesting genus, vid. p. 118 et seq. In *C. angustiarum* L. Koch, the female's palpal claw is slender, slightly curved, with a long extremity, and armed towards the base with about 4 pointed, rather short comb-teeth pointing forwards. Of the tarsal claws (of the 1st pair) the superior have about 9, the inferior only 2 teeth. On the 4th pair the claws are longer and slenderer, with very long extremities, and about 7 teeth, of which the outmost are rapidly divergent; the teeth of the

1) Blackwall seems to be the first who (in 1833) observed these spinning-tubes and showed the erroneousness of the commonly received opinion, that the long superior spinners in the Theraphosoidæ and Agalenoidæ were not spinning-organs, but a sort of palpi (anal palpi, "filières tentacules"). Vid. Blackw., Spid. of Gr. Brit., I, p. 154.

inferior claw are short and pointed. In *C. tetricus* the powerful superior tarsal claws have about 12 long, closely set comb-teeth, the inferior 3. — Of both the above named species specimens have been kindly presented to me by Dr. L. KOCH.

Gen. 7. CŒLOTES BLACKW. 1841.

Deriv.: *κοιλόω*, hollow, excavate.

Syn.: 1820. Drassus DUF., Observ. gén. sur l. Arachn., p. 9 (356) (*ad partem*).
1830. „ WALCK., Faune Franç., Arachn., p. 169 (*ad part.:* "IV. Les Spéophiles, *Speophilæ*").
1833. Clubiona BLACKW., Charact. of some undescr. gen. and spec. of Aran., p. 436 (*ad partem*).
† 1834. Aranea REUSS, Zool. Misc., Arachn., p. 210 (216) (*ad partem*).
1837. Amaurobius C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 15 (*ad partem*)
[1840. Cavator..., Proceed. of the Linn. Soc., I, p. 66.]
1841. Cœlotes BLACKW., The differ. in the numb. of eyes etc., p. 618.
1861. „ ID., Spid. of Gr. Brit., I, p. 169.
1864. Amaurobius SIM., H. N. d. Araignées, p. 138 (*ad partem*).
1868. Cœlotes L. KOCH, Die Arachn.-gatt. Amaur., Cœl. u. Cyb., p. 32.

Type: *Cœlotes saxatilis* BLACKW.

In a short notice of BLACKWALL's above cited work, "The difference in the number of eyes with which Spiders are provided," etc., in the Proceedings of the Linn. Soc. for Apr. 21, 1840, we read as follows:

"In the first tribe [Octonoculini] he proposes three new genera, two "of them belonging to a family, which he characterizes under the name of "*Ciniflonidæ:* these genera he also characterizes under the names of *Ciniflo*, "founded on *Clubiona atrox* of LATREILLE, and *Operaria*, comprising the "*Theridion benignum* WALCK., *Drassus exiguus* BLACKW. and *Drassus viridissi-*"*mus* WALCK. The third genus characterized by Mr. BLACKWALL, is referred "by him to the family of *Agelenidæ*, under the name of *Cavator:* it is founded "on the *Clubiona saxatilis* BLACKW."

From this we may conclude that in BLACKWALL'S above-mentioned paper, before it was printed, his genus *Ergatis*, or *Dictyna* SUND., was called *Operaria*, and *Cœlotes*, *Cavator*. Although I certainly do not think that an author has the right of arbitrarily changing a name, when it has once been published, yet in this case *Cœlotes* seems to me preferable to *Cavator*, and so much the more so, as no author of the notice that occurs in the "Proceedings" is named, and the two denominations in question, there in-

troduced, are not used by Blackwall in the work in which they are said to have been proposed, so that one has not even a right to cite Blackwall as authority for them. It is best to consider them as "nulles et non avenues".

As may be seen from the synonyms, the species of *Cœlotes* have been referred to very different genera, and it was not till Blackwall had shown that their spinning-organs are of exactly the same structure as those of the typical *Agalenoidæ*, that they received a secure position in the vicinity of these spiders.

In the typical species the palpal claw is strong, of tolerably uniform curvature, and armed with about 7 comb-teeth, gradually increasing in length, and directed slightly forwards; the superior tarsal claws are long, strong, and armed with about 13 similar long and powerful teeth. The inferior claw has only *two* long, pointed, teeth.

Gen. 8. TEGENARIA (Latr.) 1804.

Deriv.: uncertain. Perhaps from *τέγος*, roof, or *τήγανον*, pan (with reference to the form of the web) [1].

Syn.: 1804. Tegenaria Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 134 (*ad partem*).
† 1806. Aranea id, Gen. Crust. et Ins., I, p. 94 (*ad partem*).
1832. Agelena Sund., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1831, p. 125 (*ad part.*).
1837. Tegenaria C. Koch, Uebers. d. Arachn.-Syst., 1, p. 13 (*ad max. part.*).
1837. Philœca [Philoica] id., ibid.
1841. Tegenaria Walck., H. N. d. Ins. Apt., II, p. 1 (*ad part.:* "1e Fam. Les Familières, *Familiariæ*", et "2e Fam. Les Agrestes, *Agrestæ*").
1861. „ Westr., Aran. Suec., p. 303.
1861. „ Blackw., Spid. of Gr. Brit., I, p. 163 (*ad max. part.*).
1864. „ Sim., H. N. d. Araignées, p. 201 (*ad max. part.*)

Type: *Tegenaria civilis* Walck.

The generic name *Aranea* was in 1804 restricted by Latreille to the spiders now called *Epeira*, but in 1806 he adopted for them this latter name, which had been given them by Walckenaer, and transferred the denomination *Aranea* to those that he had before called *Tegenaria*. In this signification it was adopted by several writers. But afterwards, especially since Sundevall [2] called attention to the fact, that the order of Spiders in its entire extent ought to be called *Araneæ*, the use of this word as a generic name has gradually been abandoned.

1) In Agassiz' Nomencl. Zool. it is derived from "*Τέγεα*, nom. prop." Simon (and also Staveley) thinks that it comes from "*τεγη*, toit; *αιρω*, élever".

2) Svenska Spindlarnes Beskr., *in* Vet. Akad. Handl. för 1832, p. 372.

We take the genus *Tegenaria* in the compass assigned to it by WESTRING, i. e. we include in it also most of the forms, which C. KOCH and SIMON refer to the genus or sub-genus *Philœca [Philoica]*. As however this last genus may at some future time be resumed, it will not be deemed superfluous to indicate here in a few words its relation to *Tegenaria* properly so called, and to WESTRING's genus *Agrœca*.

In consequence of C. KOCH's contradictory and confusing definitions of his *Philœca*, it is utterly impossible to determine, which species ought properly to be united under that name, unless we accept the limitations *first* given by him of *Tegenaria* and *Philœca*. When these genera were first separated (1837, in Uebers. d. Arachn.-Syst., 1), KOCH expressly gave "*Araneus domesticus* CLERCK" as type of the genus *Philœca*, and at the same time set up as the type of *Tegenaria*, "*Aranea domestica* LINN.", by which KOCH, as one sees from e. g. Die Arachn., VIII, p. 37, rightly understood *Tegenaria civilis* WALCK. But in 1850, in the 5th Number of Uebers. d. Arachn.-Syst., this relation is reversed: there we find reckoned up under the head of *Tegenaria: T. domestica* (CLERCK), *T. intricata*, *T. campestris*, etc., whereas to *Philœca* are now referred *T. civilis*, *T. atrica* and near-related species, as also two spiders belonging to totally different genera, "*Ph. notata*" (*Liocranum domesticum* (REUSS)) and "*Ph. linotina*" (*Agrœca brunnea* (BLACKW.)). In "Die Arachniden" (vid. Vol. XVI, p. 49) KOCH reckons to *Philœca* only these two last-mentioned species, and a third, "*Ph. advena*", which appears to be a young specimen of *Tegenaria atrica*. If then the genus *Philœca* is to be retained as separate from *Tegenaria*, which however to me appears superfluous, we are obliged *by the law of priority* so to limit these genera, that *T. domestica* (CLERCK) may belong to *Philœca*, and *T. civilis* to *Tegenaria*, and not *vice versa*, as SIMON has done (loc. cit.). For *Phil. linotina* C. KOCH, which cannot be united with either of the above genera, WESTRING has very properly formed a new genus, *Agrœca*, and has with so much greater reason given it a new appellation, as that the name *Philœca* is quite unreasonable for that species, which never lives in houses.

Of WALCKENAER's *Tegenaria* (loc. cit.) the first two (see Syn.), and possibly also the 3d family ("les Brévilabes, *Brevilabiæ*") belong to *Tegenaria* NOB.; the 4th fam., "les Caudées, *Caudatæ*", appears to agree with the genus *Histopona* NOB. The 5th, "les Tisseuses, *Textrices*", answers to SUNDEVALL's and BLACKWALL's *Textrix*.

The superior tarsal claws are long and powerful, armed with numerous comb-teeth, in *T. atrica*, for example, with 16—18 on the 1st and

about 15 on the 4th pair of legs. In this species the inferior tarsal claw has 4 long, curved teeth, and the female's palpal claw about 10 teeth gradually increasing in length. In other species the number of teeth on the superior tarsal and on the palpal claw is somewhat less.

Gen. 9. CRYPHŒCA n.

Deriv.: κρύφος, hiding-place; οἰκέω, inhabit.

Syn.: 1834. Tegenaria C. Koch, *in* Herr.-Schæff., Deutschl. Ins. (*ad part.:*) 125, 26.
1845. Hahnia id., Die Arachn., XII, (*ad part.:*) p. 158.
1847. Tegenaria Walck., H. N. d. Ins. Apt., IV, p. 464 (*ad part.:* "6e Fam. Les Argusides, *Argusides*").
1850. Amaurobius Menge, Verzeichn. Danz. Spinn., p. 63 (*ad partem*).
1861. Hahnia Westr., Aran. Succ., p. 315 (*ad partem*).
1861. Tegenaria Blackw., Spid. of Gr. Brit., I, p. 163 (*ad partem*).
1864. Agelena: sub-gen.: Hahnia Sim., H. N. d. Araignées, p. 212 (*ad partem*).
1869. Hahnia Menge, Preuss. Spinn., III, p. 251 (*ad partem*).

Type: *Cryphœca silvicola* (C. Koch).

This genus I have thought it necessary to form for C. Koch's *Hahnia silvicola*, which especially by the different arrangement of the spinners essentially differs from the typical species of the genus *Hahnia*. Even Ohlert [1]), although he refers it to *Hahnia* (as does also Menge in his Preuss. Spinn.), thinks it ought preferably to form a separate genus. Blackwall refers it to *Tegenaria*, and unites the other species of Koch's *Hahnia* with *Agalena*. It appears to differ from *Hahnia* also in the armature of the palpal claw: whereas this claw in *Hahnia* has no tooth or only one that is scarcely visible, it has in *Cryphœca silvicola* 4 or 5 long, gradually increasing teeth pointing slightly forwards. The superior tarsal claws have about 10 long, closely set comb-teeth; the inferior claw has 3 (4?) long, curved, pointed teeth gradually increasing in length.

Gen. 10. HAHNIA (C. Koch) 1841.

Deriv.: Hahn, proper name.

Syn.: 1841. Hahnia C. Koch, Die Arachn., VIII, (*ad part.:*) p. 61, 63.
1841. Agelena Blackw., The differ. in the numb. of eyes etc., (*ad part.:*) p. 619 etc.
1847. Argus Walck., H. N. d. Ins. Apt., IV, (*ad part.:*) p. 465, 503, 506.
1861. Hahnia Westr., Aran. Succ., p. 315 (*ad partem*).

1861. Agelena BLACKW., Spid. of Gr. Brit., I, p. 152 (*ad partem*).
1864. „ : sub-gen. Hahnia SIM., H. N. d. Araignées, p. 212 (*ad partem*).
1869. Hahnia MENGE, Preuss. Spinn., III, p. 251 (*ad partem*).

Type: *Hahnia montana* (BLACKW.) (= *H. pusilla* C. KOCH).

The species belonging to this genus are referred by BLACKWALL to *Agalena*, from which genus they are however easily distinguished by the different position of the eyes, etc. — On the superior, strongly curved tarsal claws I have in the typical species counted about 8 long, powerful, close-set, slightly divergent comb-teeth; on the inferior 3: the female's palpal claw is, according to OHLERT [1]), toothless or provided with one scarcely perceptible point below the middle. Also in *H. elegans* (BLACKW.) (*H. pratensis* C. KOCH) this claw is destitute of teeth, according to MENGE [2]). — By MENGE *Hahnia* (with *Cryphœca*) is now referred to the family *Theridiidæ*, from which it seems to me to be widely separated.

Gen. 11. AGALENA WALCK. 1805.

Deriv.: *α priv.*, and *γαλήνη*, calm, tranquillity [3]).

Syn.: 1805. Agalena [Agelena] WALCK., Tabl. d. Aran., p. 51.
1841. „ „ ID., H. N. d. Ins. Apt., II, p. 19 (*ad part.:* 1° Fam. Les Labyrinthiques, *Labyrinthicæ*").
1861. „ „ WESTR., Aran. Suec., p. 308.
1861. „ „ BLACKW., Spid. of Gr. Brit., I, p. 152 (*ad partem*).
1864. „ „ : sub-gen. *id.*, SIM., H. N. d. Araignées, p. 211.

Type: *Agalena labyrinthica* (CLERCK).

BLACKWALL assigns to this genus much wider limits than we can adopt, and even refers to it some species, to which the characteristics he gives of *Agalena* by no means correspond, and which we refer to *Hahnia*, *Apostenus* and *Agrœca*. Even his *Ag. Hyndmanni* is hardly an *Agalena*, but still less does it belong to any of the three last-named genera. Also *Ag. boopis* CAMBR. [4]) seems to me to be the type of a separate genus: its anterior row of eyes is straight, and the central eyes of the posterior row are very

1) Klauenbild. d. Preuss. Spinn., p. 11. 2) Preuss. Spinn., III, p. 254.
3) With respect to the animal's rapid and restless motions. To derive this name, as some have done (Vid. e. g. Dict. Univ. d'Hist. Nat. par D'ORBIGNY) from *ἀγέλη*, herd, has no other foundation than the accidental similitude of the letters in the two words.
4) Descr. of twenty-four new spec. of Spid., p. 11 (8571).

disproportionately large, protruding and wide apart, their outer brims extending nearly to the entire length of the anterior row, according to Cambridge loc. cit.

Of the two families into which Walckenaer divided this genus, perhaps the 2nd, "les Nysses, *Nyssæ*", deserves to form a separate genus: *Nyssus* Walck. 1805 [1]) = *Arachne* Sav. et Aud. [2]). According to Walckenaer [3]), *Megamyrmecium [Megamyrmakion]* Reuss [4]) or *Dyction* Walck. [5]) is identical with *Arachne* Sav. et Aud.

The derivation of the name given above, is that generally adopted, and the only one which affords a rationel meaning to it. I therefore write *Agalena*, not *Agelena*, as is usually the custom. It is an additional reason for writing *Agalena*, that Walckenaer himself, when he used that word as a specific name (in "*Epeira agalena*") always wrote it thus.

The long, powerful, superior tarsal claws, in the typical species, have 10 or 12 comb-teeth, the inferior 3 or 4 long, curved, pointed teeth. On the palpal claw, which is more slender, I have counted 6 teeth rapidly increasing in length, and pointing more forwards. The superior tarsal claws of the 4th pair have about 14 teeth.

Gen. 12. HISTOPONA n.

Deriv.: *ἱστός*, web; *πονέω*, work.

Syn.: 1834. Agelena C. Koch, *in* Herr.-Schæff., Deutschl. Ins., (*ad part.:*) 125, 11.
1837. Tegenaria id., Uebers. d. Arachn.-Syst., 1, p. 13 (*ad partem*).
1841. „ Walck., H. N. d. Ins. Apt., II, p. 1 (*ad partem*).
1841. Textrix C. Koch, Die Arachn., VIII, (*ad part.:*) p. 48.
1864. „ [Tectrix] Sim., H. N. d. Araignées, p. 219 (*ad partem*).

Type: *Histopona torpida* (C. Koch).

The spider we have chosen as type for this genus has, as we see, been referred by C. Koch first to *Agalena*, then to *Tegenaria*, and lastly to *Textrix*. To me it appears to stand about midway between the two last mentioned genera; it differs from *Textrix* in that the cephalothorax is less high and less compressed in front, with a forehead that is not prominent,

1) Tableau d. Aran., p. 52.
2) Descr. de l'Égypte, (2 Éd.:) XXII, p. 314.
3) Hist. Nat. d. Ins. Apt., II, p. 419.
4) Zool. Misc., Arachn., p. 211 (217).
5) Hist. Nat. d. Ins. Apt., I, p. 380.

and that the eyes, of which the posterior lateral ones are almost of equal size with the central, are, when seen from before, arranged in two rows uniformly and slightly curved forwards; the posterior row, seen from above, is just a little bent backwards. In another, apparently undescribed species from Nizza, the anterior row is straight, or, if bent, bent rather backward than forward; the posterior row, seen from above, is scarcely perceptibly curved backwards, and the second joint of the superior spinners is longer than the first. This genus differs from *Tegenaria* chiefly in the greatly elongated superior spinners, which are exactly like those of *Textrix*. C. KOCH'S *Textrix montana* [1]) belongs beyond a doubt to *Histopona*, as do probably also the spiders, which WALCKENAER refers to the 4th Fam. "les Caudées, *Caudatæ*" [2]) of his genus *Tegenaria*.

In *H. torpida* the claws are of the form usual in the Agaleninæ, powerful, pretty much curved, with a long, strong extremity, and about 10 somewhat diverging teeth, of which those at the base are much the smallest; the inferior claw has 3 teeth, of which the inmost is very small. The female's palpal claw is slender, pretty much curved, with about 7 gradually increasing, sharp teeth pointing forwards. In the above mentioned species from Nizza the superior tarsal claws are very closely pectinated, with about 14—17 teeth; the inferior claw has 3.

Gen. 13. TEXTRIX SUND. 1833.

Deriv.: *textrix*, female weaver.

Syn.: † 1831. Aranea DUF., Descr. et fig. de quelques Aran. nouv. ou mal conn., p. 358.
1832. Agelena SUND., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1831, p. 125 (*ad partem*).
1833. Textrix ID., Consp. Arachn., p. 19.
1833. „ BLACKW., Charact. of some undescr. gen. and spec. of aran., p. 108.
1841. Tegenaria WALCK., H. N. d. Ins. Apt., II, p. 1 (*ad part.:* "5e Fam. Les Tisseuses, *Textrices*").
1845. Lycosoides LUCAS, Explor. de l'Algérie, Arachn., p. 12 (*ad partem*).
1861. Textrix WESTR., Aran. Suec., p. 310.
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 171.
1864. „ [Tectrix] SIM., H. N. d. Araignées, p. 219 (*ad partem*).

Type: *Textrix denticulata* (OLIV.) (= *T. lycosina* SUND.).

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1) Die Arachn., VIII, p. 53, Tab. CCLXVII, f. 630.
2) Hist. Nat. d. Ins. Apt., II, p. 13.

As regards our limitation of this genus, we refer to what has been said of the preceding genus, or *Histopona*. — The superior tarsal claws in *T. denticulata* or *lycosina* are of the form usual in the family, but not particularly strong, pretty regularly curved, with about 10—12 comb-teeth gradually increasing in length, the outermost pointing forwards and diverging. The inferior tarsal claw has only *two* teeth. In a few other species (among which is *T. vestita* or *ferruginea* C. Koch) I have also found only 2 teeth on that claw.

Gen. 14. HADITES Keyserl. 1862.

Deriv.: ᾅδης, *Hades*.

Syn.: 1862. Hadites Keyserl., Beschr. ein. neuen Spinne aus d. Höhlen v. Lesina, p. 3 (541).

Type: *Hadites Tegenarioides* Keyserl.

Of this remarkable, blind spider, which has hitherto been found only in the subterraneous caverns of the isle of *Lesina*, Count Keyserling has kindly presented me with a female specimen. — The superior spinners are very long, two-jointed: the first joint is more than double as long as it is broad, and somewhat longer than the inferior, thicker spinners; the 2nd joint is not so thick as the first, but equally long, conically pointed at the extremity, covered on the underside with very long spinning-tubes; on the apex of the joint a similar, very coarse spinning-tube is situated. Such a tube is found also at the apex of the slender intermediate spinners. — The palpal claw is weak, pretty regularly and slightly curved, with about 8—10 gradually increasing, pointed comb-teeth directed forwards. The tarsal claws are of the form usual in the *Agalenincæ*, somewhat weak, with about 12 long, pointed comb-teeth directed forwards; the inferior claw is small, with 3 long, pointed teeth. — Keyserling has found only 7 or 8 teeth on the superior and 2 on the inferior tarsal claw (loc. cit., p. 5).

Gen. 15. AGRŒCA Westr. 1861.

Deriv.: ἀγροῖκος, living in the country (ἀγρός, country; οἰκέω, inhabit).

Syn.: 1833. Agelena Blackw., Charact. of some undescr. gen. and spec. of Aran. (*ad part.*:) p. 351.
1843. Philœca [Philoica] C. Koch, Die Arachn. X, (*ad part.*:) p. 108.
1861. Agrœca Westr., Aran. Suec., p. 311.
1861. Agelena Blackw., Spid. of Gr. Brit., I, p. 152 (*ad partem*).

1864. Tegenaria: sub-gen. Philœca [Philoica] SIM., H. N. d. Araignées, p. 202 (*ad partem*).

1868. Agrœca L. KOCH, Die Arachn.-fam. d. Drassiden, p. 2.

Type: *Agrœca brunnea* (BLACKW.) (= *A. linotina* (C. KOCH)).

As regards the systematic position of this genus vid. sup. p. 118, 119. Concerning *Philœca* C. KOCH v. p. 129: Gen. 7. *Tegenaria*. — The species of this genus are referred by BLACKWALL and CAMBRIDGE to *Agalena*, from which they differ widely by the totally dissimilar structure of the spinners etc. — In *A. brunnea* the female's palpal claw is moderately curved, with 5 tolerably long comb-teeth gradually increasing in length, and pointing somewhat forward. The two tarsal claws on the 1st pair of legs are pretty powerful, with about 4—6 strong comb-teeth; on the 4th pair they are thin and slender, much weaker and longer than those of the 1st pair, springing at a right or slightly acute angle from a narrow, high basement, and armed with about 5 or 6 sparse teeth gradually increasing in length and pointing somewhat forwards. Thus the form of the claws on that pair differs from that which is usual among the Agalenoidæ, and indicates that *Agrœca* stands just upon the point of transition to the *Drassoidæ*. As in these latter, the tarsi have no inferior claw. The inferior spinners are a trifle longer and thicker than the superior; their 2nd joint is very short, scarcely perceptible, with rather few, short spinning-tubes at the apex.

Sub-fam. III. ARGYRONETINÆ.

Argyroneta aquatica seems to me to deserve to be taken as the type of a separate sub-family, as well on account of its peculiar habits, as of the structure of its respiratory organs. *Argyroneta* has in fact, as has been shown by GRUBE [1]) and MENGE [2]), two large tracheal tubes opening close to each other in a transversal groove, situated a little behind the ordinary genital- or "pulmonary" groove, in which the two tracheal sacs have their stigmata. These large air-tubes run through the petiolum into the cephalothorax, there sending out bundles of fine tracheæ into the legs, palpi and mandibles etc.: near the stigmata they give off two such bundles for the abdomen [3]). In certain species of *Dictyna*, *D. arundinacea* for instance,

1) Einige Resultate aus Unters. üb. die Anat. d. Spinnen, p. 300.

2) Ueber d. Lebensweise d. Arachn., p. 23.

3) MENGE, loc. cit.

the tracheæ have a similar distribution [1]). Also in *Anyphæna* (of the family *Drassoidæ*), L. Koch [2]) has discovered a transversal groove under the abdomen, into which tracheæ probably debouch. With respect to the position of its stigmata, *Argyroneta* (as also *Dictyna arundinacea* etc.) is related to the *Dysderoidæ*, which have also 4 stigmata, of which two lead to tracheal tubes: but these stigmata lie, each behind the corresponding one of the stigmata of the tracheal sacs, at the sides of the abdomen, whereas in *Argyroneta* (and *Dictyna*) the two tracheal tubes terminate near the middle-line of the belly.

Gen. 16. ARGYRONETA Latr. 1804.

Deriv.: ἄργυρος, silver; νέω, spin.

Syn.: 1804. Argyroneta Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 134.
1861. „ Westr., Aran. Suec., p. 367.
1861. „ Blackw., Spid. of Gr. Brit., I, p. 136.
1864. „ Sim., H. N. d. Araignées, p. 127.

Type: *Argyroneta aquatica* (Clerck).

In this spider the superior tarsal claws are large and powerful, almost straight at the base, afterwards curved strongly and much downwards, with (on the 1st pair of legs) about 9—12 long, vertical, parallel comb-teeth, of which the 2 or 3 innermost are much smaller than the others. The inferior claw has 3—4 pointed teeth gradually increasing in length. On the remaining pairs of legs the number of teeth on the superior claws is somewhat less. The first half of the palpal claw shows about 6 somewhat diverging teeth, of which the innermost is much smaller than the rest.

Fam. IV. DRASSOIDÆ.

Syn.: 1833. Drassides Sund., Consp. Arachn., p. 17 (*ad partem*).
1852. Cellicolæ Dolesch., Syst. Verzeichn. etc., p. 6 (*ad partem*).

In the arrangement of this family — which may be considered as including all not laterigrade (nor saltigrade) spiders, which are provided with only 2 stigmata and only 2 tarsal claws, and are destitute of a distinctly

1) Menge, Preuss. Spinn., III, p. 246.
2) Die Arachn.-fam. d. Drassiden, p. 194.

marked pars cephalica, and whose 2nd pair of legs is not longer than the others — I have adopted the limitations of the genera given by L. Koch in his excellent work: Die Arachniden-familie der Drassiden. As aforesaid however, I exclude from this family *Agrœca*, which in my opinion ought to be classed among the *Agalenoidæ*, although it has not, like the other genera of that family, three, but only two claws at the extremity of the tarsus, as also *Storena* (Conf. p. 107). *Apostenus* is not received as a separate genus in L. Koch's work; neither is *Thysa* adduced in it, this last genus having been later made known to arachnologists.

The want of a distinctly marked pars cephalica, together with the presence of only 2 tarsal claws, distinguishes in doubtful cases the spiders belonging to this family from the Agalenoidæ, into which they gradually pass, through e. g. *Apostenus* in the one family and *Agrœca* in the other. From certain not distinctly laterigrade *Thomisoidæ* (*Misumena*), the Drassoidæ are easily distinguished by the relative length of the legs: the 2nd pair being *not* longer than the others. All European Drassoidæ have 8 eyes, except *Thysa*, which has but 6. As their eyes, of which the two central ones of the anterior row are never considerably larger than the rest, are, excepting in *Zora*, arranged in *two* transverse rows, they are thus easily distinguished from the *Attoidæ*. From certain other (exotic) *Saltigradæ* (*Otiothops*, *Myrmecium* etc.), which approach near the Drassoidæ in the position of the eyes, the Drassoidæ are probably best distinguished by their cephalothorax being less high and broad anteriorly. *Zora* in the position of the eyes approaches the *Lycosoidæ*, but not only the number and form of the claws, but also the double row of long, moveable spines under the tibiæ and metatarsi of the anterior legs, indicate for that spider a place in the vicinity of *Apostenus* among the Drassoidæ.

The structure of the tarsal claws is very various. While in the *Agalenoidæ* they are gradually tapering, more equably curved, they are generally in the *Drassoidæ* of a more uniform breadth and straight at the base, and bent downwards only towards the extremity. Yet the genera, that in other respects approach the Agalenoidæ, as *Liocranum*, also have claws more like theirs than those of the *typical* Drassoidæ. Even among these we find that large and strong species, e. g. *Drassus 4-punctatus*, *Gnaphosa lucifuga*, have claws gradually tapering from the base. The claw-teeth are in general less numerous and stouter than those of the Agalenoidæ. In the genera, which, at least in the structure of the claws, form the transition to the *Thomisoidæ* (*Clubiona*, *Chiracanthium*), these organs are very elongated and closely pectinated with many teeth. The palpal claw is often entirely toothless; frequently it has a few, rarely many teeth.

This family chiefly corresponds to Walckenaer's "*Nidicoles*" [1]), which group however originally [2]) included also the *Dysderoidæ* and *Micrommata* (*Sparassus*), and in which he at last erroneously placed e. g. *Enyo* and *Lathrodectus* [3]). From Sundevall Latreille's *Tubitelæ* received the name of *Drassides*, which many araehnologists, e. g. Westring, continue to give them. *Agalenoidæ* and *Dysderoidæ* were however soon (1837) detached from them as separate families by C. Koch. Blackwall's *Drassidæ* are pretty nearly identical with our Drassoidæ, as also Simon's "*Drassiens*", which however also include genera which we refer to the *Agalenoidæ*.

The European genera we include in this family may be distinguished in the following manner (Conf. L. Koch, Die Arachn.-fam. d. Drassiden, p. 2):

§ Oculi 8.

† Maxillæ convexæ, non impressæ.

* Series oculorum postica, desuper visa, recurva.

A. Pedes aculeati.

1. Oculi laterales inter se longius quam medii antici a mediis posticis distantes; series oculorum 4 posteriorum adeo recurva, ut oculi potius tres quam duas series designent. . . . . 1. *Zora*.

2. Oculi laterales inter se non longius remoti, quam medii antici a mediis posticis: series oculorum postica leviter tantum recurva. . . . . 2. *Apostenus*.

(?) *B*. Pedes non aculeati. . . . . 3. *Trachelas*.

** Series oculorum postica procurva vel recta.

A. Abdomen subtus pone plicam genitalem aliam plicam transversam præbet. . . . . 5. *Anyphæna*.

B. Abdomen plica pone plicam genitalem caret.

a. Mandibulæ ad basin inermes.

α. Pedes 4^{ti} paris reliquis longiores.

1. Labium ad summum dimidiam maxillarum longitudinem æquat. . . . . 4. *Liocranum*.

2. Labium $\frac{1}{3}$ brevius quam maxilla. . . . . 6. *Clubiona*.

β. Pedes 1^{mi} paris reliquis longiores. . . . . 7. *Chiracanthium*.

b. Mandibulæ ad basin aculeo armatæ. . . . . 8. *Phrurolithus*.

†† Maxillæ in medio impressæ.

* Cephalothorax linea media impressa caret. . . . . 9. *Micaria*.

** Cephalothorax linea media impressa præditus.

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1) Hist. Nat. d. Ins. Apt., I, p. 202. 2) Tabl. d. Aran., p. 1.
3) Hist. Nat. d. Ins. Apt., II, p. 512; IV, p. 526.

A. Series oculorum postica, desuper visa, plus minus procurva, et evidenter longior quam series antica. . . . . 10. *Drassus.*

B. Series oculorum postica, desuper visa, recta vel recurva.

1. Series oculorum postica sub-recta, non recurva, parum longior quam series antica. Margo posterior sulci unguicularis mandibularum intus inermis vel dentibus tantum parvis armatus. 11. *Melanophora.*

2. Oculi laterales inter se evidenter longius distantes quam medii antici a mediis posticis; series oculorum posticorum sæpissime evidenter recurva. Margo posterior sulci unguicularis mandibulæ intus in laminam denticulatam (rarissime in dentem tantum fortem) productus. . . . . 12. *Gnaphosa.*

§§ Oculi 6. . . . . 13. *Thysa.*

Gen. 1. ZORA (C. KOCH). 1848.

Deriv.: probably ζωρός, strong, fiery.

Syn.: 1820. Dolomedes DUF., Descr. de cinq Arachn. nouv. (*ad part.:*) p. 204.
†1833. Lycæna SUND., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1832, p. 265.
1833. „ [Lycodia] ID., Consp. Arachn., p. 22.
†1833. Hecaërge BLACKW., Charact. of some undescr. gen. and spec. of Aran., p. 193.
?1847. Lycosoides LUCAS, Explor. de l'Algérie, Arachn., p. 12 (*ad partem*).
1848. Zora C. KOCH, Die Arachn., XIV, p. 91 (*ad partem*).
1851. Lycodia WESTR., Förteckn. etc., p. 46.
1861. Hecaërge BLACKW., Spid. of Gr. Brit., I, p. 41.
1861. Zora WESTR., Aran. Suec., p. 324.
1864. „ SIM., H. N. d. Araignées, p. 371 (*ad partem*).
1866. „ L. KOCH, Die Arachn.-fam. d. Drassiden, p. 2 (*ad partem*).

Type: *Zora lycœna* (WALCK.) [1]).

The species of this genus were by WALCKENAER and others united with *Dolomedes* among the *Lycosoidæ;* they really constitute a transition from the Drassoidæ to that family, from which however, as is justly remarked by WESTRING, they are excluded by their low and weak cephalothorax, the peculiar spines with which the legs are armed, their habits etc., as also by the number and form of the claws, to which OHLERT has drawn attention.

1) DUFOUR has already in 1820 (loc. cit.) given the specific name *spinimanus* to another spider belonging to the genus *Zora*, and accordingly the typical species, *Z. spinimana* (SUND.), must be denominated by the specific name next following in order of time (*lycœna* WALCK.), under which it has been described. The older names produced by WALCKENAER and SIMON as synonyms, *Dolomedes errans* DUF. and *D. hippomane* SAV. et AUD., assuredly do not belong to *Zora spinimana* (SUND.).

Nevertheless they have been considered as Lycosoidæ by most writers, e. g. by C. Koch, Blackwall, Simon. — *Zora ocreata* C. Koch [1]) probably does not belong to this genus.

The name *Lycodia* Sund. (Consp. Arachn.) is either a slip of the pen or a misprint for *Lycæna*, as is evident partly from the passage cited in the Consp. Arachn.: "*Lycodia* Act. Holm. 1832" — in Act. Holm. (Vet.-Akad. Handl.) 1832 the word is *Lycæna*, not *Lycodia* — partly from Sundevall's own express declaration in "Årsber. om nyare zool. arb. o. uppt. 1837—40", p. 340. It is on this account that the name *Zora* is to be preferred to *Lycodia*. The names *Lycæna* and *Hecaërge* were already applied to genera of butterflies before they were given to the spiders now under consideration [2]). Conf. Westring, Aran. Suec., p. 325.

In the typical species the tarsal claws are weak, slender, and of almost uniform breadth (but somewhat stronger at the place which bears the teeth), issuing from a high base, uniformly and much curved. The inner claw has about 4 or 5 saw-teeth, gradually increasing in length, of which the outermost are pointed, those nearest the base blunt and very short. The outer claw has but from 2 to 4 teeth [3]), the innermost tooth being situated under the middle of the claw. The hair-tuft under the claws is rather small, the hairs shorter than the claws and dilated towards the extremity. The female's palpal claw is very small, uniformly and pretty much curved, with 3 or 4 short, triangular teeth gradually increasing in length.

Gen. 2. APOSTENUS Westr. 1851.

Deriv.: *ἀποστενόω*, to make narrow (*στενός*, narrow).

Syn.: ?1841. Agelena Blackw., The differ. in the numb. of eyes etc., (*ad part.:*) p. 624.
?1847. Argus Walck., H. N. d. Ins. Apt., IV, p. 504 (*ad part.:* "Fam. des Agélénides, *Agelenides*").
1851. Apostenus Westr., Förteckn. etc., p. 46.
1861. „ id., Aran. Suec., p. 322.
?1861. Agelena Blackw., Spid. of Gr. Brit., I, p. 152 (*ad partem*).
?1861. Drassus Cambr., Descr. of ten new spec. of spid. lately disc. in Engl. (*ad part.:*), p. 3 (430).
1866. Zora L. Koch, Die Arachn.-fam. d. Drassiden, p. 2 (*ad partem*).

Type: *Apostenus fuscus* Westr.

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1) Die Arachn., XIV, p. 105.

2) *Lycæna* Fabr. [Lepidopt.] 1808. — *Hecaërge* Ochsenh. [Lepidopt.] 1816.

3) According to Ohlert (Klauenbild. d. Preuss. Spinn., p. 17), the teeth of the tarsal claws are more numerous, 7 and 4 respectively.

This genus, which is not received by L. Koch in his "Die Arachn.-fam. d. Drassiden", appears to me to form a transition from the Drassoidæ, on the one side to the *Agalenoidæ*, and on the other through *Zora* to the *Lycosoidæ*. By Blackwall a couple of species belonging, as far as I can see, to this genus, are referred to *Agalena*, namely his *A. celans* and *gracilipes* [1]). — *A. fuscus* Westr. I have found at Kissingen in Bavaria, and afterwards also at Söderköping in Sweden; another species is described by Ausserer [2]) under the name of *A. saxatilis*.

The tarsal claws of *A. fuscus* are weak, much curved, and provided nearer the base with 4—5 divergent, rather long comb-teeth gradually increasing in length. On a conical process beneath them are only *two*, colossal hairs (the claw-tuft), in the form of flat thin slices, narrow at the base, gradually dilated, and cut off obliquely at the broad extremity. They are much longer than the claws. The palpal claw, which is weak like those of the tarsi, has 2 or 3 teeth pointing forward, near its base.

To *Apostenus* or some nearly related genus belongs perhaps *Aranea spinicrus* Duf. [3]), which however is by Walckenaer referred to the genus *Sparassus* or *Micrommata* [4]), as also *Drassus sub-niger* Cambr. loc. cit.

* Gen. 3. TRACHELAS L. Koch. 1866.

Deriv.: *τραχηλᾶς*, thick-necked.

Syn.: 1866. Trachelas L. Koch, Die Arachn.-fam. d. Drassiden, p. 2.

Type: ?

This South-European genus is known to me only by the few words with which it is characterized by L. Koch in the above cited passage. I am not even sure that I have assigned it a right place in my schema, for L. Koch does not say that the posterior row of eyes, seen from above, is curved backwards, but only: "die hintere Augenreihe durch Tieferstehen der Mittelaugen gebogen." Canestrini and Pavesi [5]) refer *Trachelas* to the *Theridioidæ*, not to the *Drassoidæ*.

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1) Spid. of Gr. Brit., I, p. 161, 162, Pl. X, fig. 103, 104. — *A. celans* Blackw. is by Canestrini and Pavesi (Aran. Ital., p. 37) referred to the genus *Liocranum* of L. Koch.

2) Die Arachn. Tirols, I, p. 163.

3) Descr. et fig. de quelques Aran. nouv. ou mal connues, p. 361, Pl. X, fig. 3.

4) Hist. Nat. d. Ins. Apt., I, p. 586.

5) Araneidi Italiani, p. 46.

Gen. 4. LIOCRANUM L. Koch. 1866.

Deriv.: λεῖος, smooth; κρᾶνον, head, skull.

Syn.: 1834. Tegenaria C. Koch, *in* Herr.-Schæff, Deutschl. Ins., 124, (*ad part.:*) 4, 15.
1834. Clubiona Reuss, Zool. Misc., Arachn., (*ad part.:*) p. 208 (214).
1841. Philœca [Philoica] C. Koch, Die Arachn., VIII, (*ad part.:*) p. 55.
1861. Clubiona Blackw., Spid. of Gr. Brit., I, p. 121 (*ad partem*).
?1861. Drassus Cambr., Descr. of ten new spec. of spid. lately disc. in Engl., (*ad part.:*) p. 1 (428).
1866. Liocranum L. Koch, Die Arachn.-fam. d. Drassiden, p. 2.

Type: *Liocranum domesticum* (Reuss).

The typical species of this genus, formed by L. Koch, belongs also to the Fauna of Sweden: I found a few half-grown specimens under stones at Söderköping in the summer of 1862. Blackwall still refers it to *Clubiona*. — The tarsal claws are pretty strong, short, with about 5 divergent teeth on the 1st pair of legs. On the 4th pair the claws are somewhat longer and weaker, also with 5 teeth. There is no claw-tuft. The palpal claw is pretty much curved, with about 3 teeth.

Drassus prælongipes Cambr. loc. cit. appears to belong to this genus.

Gen. 5. ANYPHÆNA Sund. 1833.

Deriv.: ἀνυφαίνω, unravel a web.

Syn.: 1805. Clubiona Walck., Tabl. d. Aran., p. 41 (*ad part.:* "2e Fam. Les Hamadryades, *Hamadryades*").
1832. Agelena Sund., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1831, p. 125 (*ad partem*).
1833. Anyphæna id., Consp. Arachn., p. 20.
1861. „ Westr., Aran. Suec., p. 370.
1861. Clubiona Blackw., Spid. of Gr. Brit., I, p. 121 (*ad partem*).
1864. „ Sim., H. N. d. Araignées, p. 131 (*ad partem*).
1866. Anyphæna L. Koch, Die Arachn.-fam. d. Drassiden, p. 2, 194.

Type: *Anyphœna accentuata* (Walck.).

The genus *Anyphœna*, still by Blackwall included in *Clubiona*, was formed by Sundevall in 1833 (loc. cit.) for Walckenaer's *Clubiona accentuata*. To this genus C. Koch subsequently, in 1837 [1]), referred, to-

1) Uebers. d. Arachn.-Syst., 1, p. 18.

gether with this or the typical species, also *Clubiona nutrix* WALCK., which he however some time afterwards detached from *Anyphæna* and united with a couple of other species into a new genus, *Chiracanthium*. To take, as SIMON has done, the generic name of *Anyphæna* for just these species, which SUNDEVALL never referred to that genus, is of course an error.

L. KOCH has discovered (vid. loc. cit., p. 194) that *Anyphæna* is distinguished by both sexes having on the underside of the abdomen, sometimes in the middle of the belly, sometimes a little fore or aft of that point, a small transversal groove or fold of the skin. I imagine that in this groove there are one or two tracheal stigmata, as is the case with e. gr. *Argyroneta aquatica*, which has a similar groove under the anterior part of the belly. (Vid. sup. p. 136).

The tarsal claws of *A. accentuata* are rather small, strong, with about 14—20 long, closely set comb-teeth on the inner claw and only about half that number on the outer. The claw-tuft is formed of uncommonly broad, flattened, platelike hairs, which are dilated outwards, cut almost transversely at the extremity, and somewhat longer than the claw.

Gen. 6. CLUBIONA (LATR.). 1804.

Deriv. unknown [1]).

Syn.: 1804. Clubiona LATR., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 134 (*ad partem*).
1805. „ WALCK., Tabl. d. Aran., p. 41 (*ad part.: saltem* "1e Fam. Les Dryades, *Dryades*").
1861. „ WESTR., Aran. Suec., p. 388.
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 121 (*ad partem*).
1864. „ SIM., H. N. d. Araignées, p. 131 (*ad max. partem*).
1866. „ L. KOCH, Die Arachn.-fam. d. Drassiden, p. 2, 291.

Type: *Clubiona holosericea* (DE GEER).

This genus is still preserved almost in its original compass, as more accurately limited by WALCKENAER, by, for example, BLACKWALL, who however detaches from it the species, which, in consequence of their having an infra-mammillary organ and calamistrum, he refers to *Ciniflo (Amaurobius)*.

The tarsal claws of these spiders are rather long, almost straight, curved only at the extremity, closely pectinated with long, strong teeth,

1) The usually received etymology, *κλέος*, fame; *βιόω*, live, seems highly improbable. — Perhaps the name is formed of *κλωβίον*, a bird-trap (with reference to the sack-like tube which these spiders inhabit).

about double as many on the interior as on the exterior claw. The chief part of the claw forms almost a right angle with its base. The claw-tuft varies greatly; in the larger species it is strongly developed, especially on the 4th pair of legs, where the hairs are long and thin and more numerous than on the 1st pair, and almost similar to the tuft-hairs of *Chiracanthium*. The claws themselves are also on that pair considerably longer than on the 1st pair. The palpal claw is small and without teeth.

Gen. 7. CHIRACANTHIUM C. Koch. 1839.

Deriv.: χείρ, hand; ἀκάνθιον, little thorn (ἄκανθα, thorn).

Syn.: 1805. Clubiona Walck., Tabl. d. Aran., p. 41 ("3e Fam. Les Nymphes, *Nymphæ*" *ad part.*).
1834. Drassus Reuss, Zool. Misc., Arachn., (*ad part.:*) p. 204 (210).
1837. Anyphæna C. Koch, Uebers. d. Arachn.-Syst., 1, p. 18 (*ad partem*).
1839. Chiracanthium [Cheiracanthium] id., Die Arachn., VI, p. 9.
1861. „ „ Westr., Aran. Suec., p. 377.
1861. Clubiona Blackw., Spid. of Gr. Brit., I, p. 121 (*ad partem*).
1864. Anyphæna Sim., H. N. d. Araignées, p. 144 (*saltem ad part.*).
1866. Chiracanthium [Cheiracanthium] L. Koch, Die Arachn.-fam. d. Drassiden, p. 2, 231.

Type: *Chiracanthium nutrix* (Walck.).

Blackwall refers the species of this genus to *Clubiona*. By C. Koch it was singularly enough reckoned among the "*Theridides*" (Uebers. d. Arachn.-Syst., 5, p. 22). Concerning *Anyphæna* Simon, vid. sup., p. 144 under head of Gen. 5. *Anyphæna*.

The tarsal claws are of the same form as among the *Philodrominæ* in the next sub-order: they are small, long, slender, almost straight, except at the extremity, where they are bent into a hook. They spring at a right angle from a slender, high base: the inner claw has on the underside about 15 coarse, short, vertical, conical, somewhat sparse comb-teeth, that gradually increase in length; on the outer claw the number of teeth is somewhat less. The claw-brush is very thick and longer than the claw itself; its hairs are long and slender, slightly broader just at the extremity (as in *Micrommata*). The palpal claw is toothless, as in *Clubiona*.

Gen. 8. PHRUROLITHUS (C. Koch). 1839.

Deriv.: φρουρέω, guard; λίθος, stone.

Syn.: 1839. Phrurolithus C. Koch, Die Arachn., VI (*ad part.:*) p. 110—112.

1851. Phrurolithus WESTR., Förteckn. etc., p. 46.
1861. „ ID., Aran. Suec., p. 326.
1861. Drassus BLACKW., Spid. of Gr. Brit., I, p. 104 (*ad partem*).
1864. Theridium [Theridio]: sub-gen. Phrurolithus [Phrurolithum] SIM., H. N. d. Araignées, p. 168 (*ad partem*).
1866. Phrurolithus L. KOCH, Die Arachn.-fam. d. Drassiden, p. 2, 224.

Type: *Phrurolithus festivus* C. KOCH.

Under the name of *Phrurolithus*, C. KOCH united a number of spiders of various families, chiefly *Theridioidæ* and *Drassoidæ*. For the species among C. KOCH's *Phrurolithi*, that are *Drassoidæ*, WESTRING in 1851 adopted this generic name, and has been followed in this by L. KOCH (Vid. Syn.). OHLERT's *Phrurolithus*, embracing the greater part of the *Theridioidæ* included by C. KOCH in that genus, I have called *Lithyphantes*. Vid. sup., p. 94.

The tarsal claws of *Ph. festivus* are very small, rather short, much and pretty regularly curved (on the 4th pair of legs longer and weaker, straight at the base, much curved at the extremity), without teeth. There is a claw-tuft, but it consists only of a few much dilated hairs. The female's palpal claw is small, weak, and toothless.

Gen. 9. MICARIA WESTR. 1851.

Deriv.: *micare*, shine.

Syn.: 1805. Drassus WALCK., Tabl. d. Aran., p. 45 (*ad partem*).
1832. Clubiona SUND., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1831, p. 138 (*ad partem*).
? 1832. Herpyllus HENTZ, On North Amer. Spid., p. 120 (*ad partem*).
†1835. Macaria C. KOCH, *in* HERR.-SCHÆFF, Deutschl. Ins., 129, 14—16.
1851. Micaria WESTR., Förteckn. etc., p. 46.
1861. „ ID., Aran. Suec., p. 330.
1861. Drassus BLACKW., Spid. of Gr. Brit., I, p. 104 (*ad partem*).
1864. Macaria SIM., H. N. d. Araignées, p. 112.
1866. Micaria L. KOCH, Die Arachn.-fam. d. Drassiden, p. 2, 52.

Type: *Micaria fulgens* (WALCK.).

The name *Micaria*, under which C. KOCH had introduced this genus, being already occupied [1]), it was in 1851 changed by WESTRING to *Micaria*.

1) *Macaria* CURT. [Lepidopt.] 1826.

The tarsal claws are small, straight at the base, but towards the extremity curved almost to a semicircle, with few teeth. In *M. pulicaria* the teeth are only 2 in number, very short and blunt; in *M. fulgens* they are 3, longer, but sparse, thick, and very obtuse. The hairs of the claw-tuft are few, dilated, rounded at the extremity; the whole underside of the tarsus is thinly covered with suchlike hairs.

Under this genus Simon [1]) takes up as synonyms *Corinna* C. Koch [2]) and *Drassina* Grube [3]), both of which appear to me to be very remote from it. *Drassina* is stated to have *three* claws on the tarsi, and, if this be really so, cannot even belong to the family Drassoidæ. *Corinna* would seem to stand on the point of transition from the family *Drassoidæ* to the *Myrmecioidæ*, to which last the genus is referred by C. Koch: to me it appears rather to belong to the former family. L. Koch however has not received it among the Drassoidæ.

Gen. 10. DRASSUS Walck. (1805).

Deriv.: *δράσσομαι*, seize, catch.

Syn.: 1805. Drassus Walck., Tabl. d. Aran., p. 45 (*ad partem*).
1805. Clubiona id., ibid., p. 41 (*ad part.:* "5e Fam. Les Furies, *Furiæ*").
1832. Herpyllus Hentz, On North Amer. Spid., p. 102 (*ad partem*).
1834. Filistata Reuss, Zool. Misc., Arachn., p. 197 (213) (*ad partem*).
1837. Drassus C. Koch, Uebers. d. Arachn.-Syst., 1, p. 18.
1851. Drassodes Westr., Förteckn. etc., p. 48.
1861. „ id., Aran. Suec., p. 360.
1861. Drassus id., ibid., p. 337.
1861. „ Blackw., Spid. of Gr. Brit., I, p. 104 (*ad partem*).
1864. „ Sim., H. N. d. Araignées, p. 123.
1866. „ Koch, Die Arachn.-fam. d. Drassiden, p. 2, 76.

Type: *Drassus quadri-punctatus* (Linn.).

In common with L. Koch, we unite Westring's *Drassodes* with his *Drassus* in one genus, since, as L. Koch has shown, it is not at present possible to determine any sure line of separation between them, however different in their general appearance the more typical species of these two groups may be. It must not however be forgotten, that the form of the *cocoons* in Westring's *Drassus* and *Drassodes* is quite different, although of course that circumstance alone cannot be considered as possessing any de-

1) Hist. Nat. d. Araignées, p. 539.
2) Die Arachn., IX, p. 17 et seq.
3) Beschr. neuer im Amurlande u. in Ostsibirien gesammelter Aran., p. 15.

cisive importance. — In BLACKWALL the genus *Drassus* has a far wider compass, and comprises also the groups *Phrurolithus*, *Micaria*, *Melanophora* and *Gnaphosa*, which we have considered as separate and independent genera. WALCKENAER, as is well known, also referred to this genus many other and widely separate forms, among which are some species of the genera *Cœlotes* and *Dictyna*, to which BLACKWALL first assigned their true places in the system.

The genus *Herpyllus* HENTZ seems very nearly to correspond to *Drassus* WALCK., and comprises not only species of the genus now before us, and of *Gnaphosa*, but probably also of several others, *Micaria* and *Melanophora* among the rest. Conf. HENTZ, Aran. of the United States, *in* Boston Journ. of Nat. Hist., V, p. 454—461, Pl. XXIV, fig. 2—20.

In the genus *Drassus* the tarsal claws are powerful, straight at the base, generally somewhat long, especially on the posterior legs, armed below with 5 or 6 strong comb-teeth; the palpal claw has about 3 teeth at some distance apart. Such is the case with e. g. *D. lapidicola*. In *D. quadri-punctatus* the claws are still more powerful, but in other respects very similar. The hairs of the claw-tufts are in general dilated towards the extremity, flattened, and mostly short; they are often continued on the tarsus throughout its underside, especially on the first pair of legs. In *D. braccatus* (vid. infra) I have counted 3 thick, almost parallel comb-teeth and a little point before them on the tarsal claws, 2 or 3 teeth on the palpal claws.

In the vicinity of Söderköping I have met with a particularly fine species of *Drassus* [1]) (no doubt identical with *D. braccatus* L. KOCH, though the cephalothorax in that species is said to be black, whereas in my specimens it is reddish brown), which in some respects appears to form the transition to *Gnaphosa*. In size and colour it is very like *Gn. variana*, but the position of the eyes is exactly the same as in *Drassus*. The posterior edge of the claw-furrow of the mandibles forms in this species with the corresponding longitudinal inner edge of the mandible a *strong*, *right-*

1) *Drassus braccatus* L. KOCH cephalothorace rufescenti-fusco, palpis et partibus oris infuscatis, pedibus rufescenti-testaceis, femoribus 4 anterioribus nigricantibus; abdomine fuligineo, maculis 6 albicantibus in dorso: 2 ad basin, minoribus, rotundatis; reliquis 4 fere in medio, transversis, obliquis, in rectangulum vel trapezium postice angustius et paullo latius quam longius dispositis.

Long. ♀ 7—8, ♂ c:a 5 millim.

Femora supra in medio aculeis 2, 1^{mi}, 2^{di} et 4^{ti} paris præterea uno ad apicem in latere interiore, 3^{tii} paris 2 ad apicem; pedes cetero supra non aculeati; tibiæ et tarsi pedum 4 posteriorum subtus et in lateribus aculeati.

Sub lapidibus ad Söderköping rarissime inventus.

angled corner. The cephalothorax is broad in front, almost as in *D. troglodytes;* the maxillæ are almost parallel, scarcely at all inclined towards the lip, of considerable length, narrower in the middle, slightly rounded, nearly cut transversely, at the broad extremity.

Gen. 11. MELANOPHORA C. Koch. 1833.

Deriv.: *μέλας*, black; *φέρω*, bear.

Syn.: 1805. Drassus Tabl. d. Aran., p. 45 (*ad partem*).
? 1832. Herpyllus Hentz, On North Amer. Spid., p. 120 (*ad partem*).
1833. Melanophora C. Koch, *in* Herr.-Schæff., Deutschl. Ins., 120, 20—23.
1834. Filistata Reuss, Zool. Misc., Arachn., p. 197 (213) (*ad partem*).
1837. Melanophora C. Koch, Uebers. d. Arachn.-Syst., 1, p. 17.
1861. „ Westr., Aran. Suec., p. 354 (*ad partem*).
1861. Drassus Blackw., Spid. of Gr. Brit., I, p. 104 (*ad partem*).
1864. Melanophora Sim., H. N. d. Araignées, p. 116.
1866. „ L. Koch, Die Arachn.-fam. d. Drassiden, p. 2, 142.

Type: *Melanophora atra* (Latr.).

We adopt this genus, which however might perhaps without harm be suppressed and united with *Gnaphosa*, in the extent assigned to it by L. Koch, which appears to coincide with its original limits assigned by C. Koch. — The structure of the tarsal claws is the same as in the genus *Gnaphosa.*

Gen. 12. GNAPHOSA (Latr.) 1804.

Deriv.: *γνάπτω*, scratch, tear.

Syn.: 1804. Gnaphosa Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 134 (*ad partem*).
1805. Drassus Walck., Tabl. d. Aran., p. 45 (*ad part.:* "1e Fam. Les Lithophiles *Lithophilæ*", etc.).
1832. Herpyllus Hentz, On North Amer. Spid., p. 120 (*ad partem*).
1834. Filistata Reuss, Zool. Misc., Arachn., p. 197 (213) (*ad partem*).
1837. Pythonissa C. Koch, Uebers. d. Arachn.-Syst., 1, p. 16.
1861. „ Westr., Aran. Suec., p. 350.
1861. Melanophora id., ibid., p. 354 (*ad partem*).
1861. Drassus Blackw., Spid. of Gr. Brit., I, p. 104 (*ad partem*).
1864. Pythonissa Sim., H. N. d. Araignées, p. 120.
1866. „ L. Koch, Die Arachn.-fam. d. Drassiden, p. 2, 6.
1868. Gnaphosa Thor., *in* Eisen *et* Stuxberg, Om Gotska Sandön, p. 379.

Type: *Gnaphosa lucifuga* (Walck.).

This genus, for which LATREILLE in his Genera Crust. et Ins. (I, p. 125) still uses the name *Gnaphosa* — a name which he afterwards changed for the more recent Walckenaerian denomination *Drassus* — has in LATREILLE for its type *Gnaphosa melanogaster* LATR. (*Aranea lucifuga* WALCK. 1802), and it answers, in the more restricted meaning in which we now, in right of priority, restore it to science, the genus *Pythonissa* C. KOCH, for which without doubt the same species is typical. As regards the more accurate determination of the limits of *Gnaphosa* or *Pythonissa*, we follow L. KOCH, and accordingly refer to this genus *P. variana* C. KOCH, which, as well by the position of the eyes, as by the presence of the little lamina, into which the posterior edge of the mandible's claw-furrow is drawn out, shows itself to belong to this genus and not to *Melanophora*, to which WESTRING refers it. The cocoon of this spider is however of an altogether different form from that of the other species both of *Gnaphosa* and *Melanophora* known to me: it is not plano-convex and of a firmer substance, resembling paper, but loose and lenticular, as in e. g. *Drassus lapidicola*. We also consider *Pyth. maculata* C. KOCH (*Ar. nocturna* LINN.) as a *Gnaphosa*, though standing on the limit between that genus and *Melanophora*, to which WESTRING refers it. The claws in this spider are very dissimilar to those of the other species both of *Gnaphosa* and *Melanophora*, which I have examined.

The tarsal claws are in *Gnaphosa* usually small, but coarse and powerful, of about the same form as those of *Drassus:* of uniform breadth or slightly tapering and straight nearest to the base, much bent towards the extremity, which is long and strong. On the underside they have only a few comb-teeth (in *G. lucifuga* e. g. about 5—6). On the 4th pair the claws are weaker and more uniformly curved. The palpal claw is tolerably strong, with some few (in *G. lucifuga* about 5) coarse comb-teeth. Deviations from this however occur: in *G. exornata* for example, the tarsal claws of which have 5—7 rather long and close-set comb-teeth, the palpal claw is long and slender, slightly and uniformly curved, with about 15 fine, long, very closely set comb-teeth. *G. nocturna* deviates still more: in this species the palpal claw is toothless; the tarsal claws are weaker, more equably curved, and armed from the base nearly to the extremity with about 5 or 6 conical teeth, proceeding from the side of the claw; the free extremity of the claw is very short.

Remarks. LATREILLE is the first, who, after WALCKENAER had in 1802, in his Faune Parisienne, separated *Mygale* from the great Linnean genus *Aranea*, divided the remaining spiders into several smaller groups

distinguished by generical names. (See Nouv. Dict. d'Hist. Nat., XXIV, p. 133—136). These groups are: *Eriodon*, *Dysdera*, *Segestria*, *Argyroneta*, *Gnaphosa*, *Clubiona*, *Tegenaria*, *Scytodes*, *Linyphia*, *Aranea*, *Heteropoda*, *Misumena*, *Micrommata*, *Oxyopes*, *Dolomedes*, *Lycosa* and *Salticus*. Although he did not himself immediately, but only some time afterwards [1]), expressly call these groups "genres", it is beyond a doubt that they ought to be considered as genera formed by Latreille, and their names accordingly to have right of priority before subsequently proposed, synonymous denominations. This is also usually admitted as regards most of them, those in fact which were retained by Walckenaer in his Tableau des Aranéides (1805). As to the groups which received new names from Walckenaer, Latreille in his subsequent works retained the appellations he had given to *a part* of them *(Eriodon*, *Micrommata*, *Oxyopes* and *Salticus)*, whence also some arachnologists have adopted these names, whereas others have made use of the corresponding Walckenaerian denominations; but the names *Gnaphosa*, *Aranea*, *Heteropoda* and *Misumena* Latreille himself in time abandoned, and adopted the corresponding Walckenaerian synonyms, whereby these names have gradually fallen into oblivion. In the mean time, as no rational cause can be assigned, why these names should not be retained, as well as those, which belong to the two first named categories, I have adopted *all* Latreille's generic names, with the single exception of *Aranea*, *Araneæ* being the general name for the entire order of spiders.

*Gen. 13. THYSA Kemp.

Deriv.: probably *Θύσαι*, a name of the female bacchanals (*θύω*, to rage).

Syn.: 1867. Thysa Kemp., Thysa pythonissæformis, p. 607 (1).

Type: *Thysa pythonissæformis* Kemp.

The remarkable spider, for which this genus has been formed, and of which only one specimen, a female, has been found (at Erlau in Hungary), is known to me only through Kempelen's description and figures (loc. cit.). According to him it is related to *Pythonissa (Gnaphosa)*, but has only *six* eyes. If we imagine to ourselves a *Gnaphosa* without the anterior central eyes, and with the posterior row curved strongly backwards, we have much about the same position of the eyes as in *Thysa*. But this animal

1) In his Cours d'Entomologie, p. 501, he says: "... je perfectionnai ma distribution et *j'y établis la plupart des genres admis aujourdhui. (Nouv. Dict. d'Hist. Nat.).*"

differs also in other respects from *Gnaphosa*, as e. g. it is stated that "the head is considerably elevated above the thorax, especially anteriorly". The systematic position of this animal cannot yet be considered as definitely determined: it is only provisionally that we place it in this family and next after *Gnaphosa*.

Fam. V. DYSDEROIDÆ.

Syn.: 1837. Dysderides C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 20.
1852. Cellicolæ DOLESCH., Syst. Verzeich. etc., p. 6 (*ad partem*).

The spiders belonging to this family are without difficulty distinguished from all others, except the *Territelariæ*, by their having *two stigmata, the one immediately behind the other, on each side of the belly near its base.* In other spiders provided with tracheal tubes as well as two air-sacs, the former usually debouch near the spinners, rarely *(Argyroneta, Dictyna, Anyphæna?)* in the middle line of the belly. The Dysderoidæ differ from the *Territelariæ* principally in having the mandibular claw, when at rest, bent inwards or obliquely inwards and backwards, not directly backwards and in that the two posterior stigmata lead to tracheal *tubes*, not to tracheal or air-*sacs* ("pulmonary" sacs). They are, in general, further distinguished by remarkably short tarsi and long patellæ, and have, as far as is known, never eight, but only *six* (or *two*, if the exotic genus *Nops* MAC LEAY belong to them) or *no* eyes. *Stalita Schiœdtei* NOB. (*S. tænaria* KEYSERL.) has, curiously enough, small *rudiments* of 6 eyes. The tarsal claws vary greatly in form and armature: the inferior claw is wanting about as frequently as it is present; the palpal claw is always small and without teeth.

DUFOUR, who first discovered that *Dysdera* had 4 stigmata, and who believed that these all led to tracheal or so-called pulmonary sacs [1]), as in the case of the *Territelariæ* (*Tetrapneumones* LATR.), united that genus with these last mentioned or "les araignées quadripulmonaires" [2]), and was in this followed by LATREILLE [3]). SUNDEVALL [4]) and WALCKENAER [5]) however powerfully opposed a so one-sided over-estimation of an anatomical pecu-

1) That the "pulmonary sacs" or "lungs" of spiders and of other arachnoidea are only peculiarly modified tracheæ, has been shown by LEUCKART (Ueb. d. Bau u. d. Bedeut. d. sog. Lungen bei d. Arachn., p. 246 et seq.).

2) Observ. sur quelques Arachn. quadripulm., p. 26 etc.

3) Fam. Nat. du Règne Anim., p. 312; Cours d'Éntom., p. 512.

4) Svenska Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1829, p. 192 (1830).

5) Mém. sur une nouv. Classific. d. Aran., p. 436. (1833).

liarity, which moreover, as Dugès [1]) shortly after showed, had not even been correctly understood, since the posterior stigmata do not, like the anterior, lead to tracheal *sacs*, but to a pair of tracheal *tubes*. The Dysderoidæ are now generally admitted to stand in nearer relationship to Sundevall's *Drassides* than to his *Mygalides*. Walckenaer [2]) was, I believe, the first who considered them as a separate group comparable with our families; they were by him called "*Tubicoles*": the name *Dysderides* they received from C. Koch (loc. cit.). This family is also adopted by Blackwall. Westring includes it in his *Drassidæ*, and Simon in his "*Drassiformes*" (as a separate "tribus", "*Ségestriens* ou *Pulmo-trachéens*"), i. e. in our *Tubitelariæ*.

The genus *Nops*, which Simon refers to his "*Drassiens*" (ad max. part. = *Drassoidæ* nob.) belongs probably to the *Dysderoidæ*: Conf. Mac Leay, On some new forms of Arachn., p. 2 et seq. In that paper (p. 4) we read of another spider, which Mac Leay also refers to the *Dysderoidæ*: "I possess specimens of a translucid West Indian spider closely allied to *Filistata*, and having Mygalidous eyes situated on the balloon-shaped cephalothorax of a *Nops*. In these specimens the antennæ [mandibles], maxillæ etc. are so rudimentary and inconspicuous, as would almost make us doubt that the species can be an animal of prey, did we not find it make an irregular web in the corners and crevices of houses. I call it *Hemerachne* [3]) *tenuipes*". — This spider would seem to belong rather to the *Scytodoidæ* than to the *Dysderoidæ* or *Filistatoidæ*.

The following genera belong to the European Fauna:

§ Oculi 6 perfecte explicati.

* Series oculorum antica ex 4, postica ex 2 oculis constans; oculi non omnes valde appropinquantes.

1. Maxillæ longæ, rectæ, sub-parallelæ. Ungues tarsorum trini. 1. *Segestria*.

2. Maxillæ breves, latæ, basi gibbosæ, in labium paullo inclinatæ. 2. *Schœnobates*.

** Series oculorum antica ex 2, postica ex 4 oculis constans.

A. Oculi laterales serici posticæ, sub-rectæ, longius ab oculis mediis ejusdem seriei disjuncti; oculi duo antici inter se longe remoti. Ungues tarsorum trini. . . . . 3. *Ariadne*.

B. Oculi saltem seriei posticæ inter se valde appropinquantes.

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1) Sur les organes de la Respir. dans les Aran. Segestria et Dysdera, p. xii, xiv. (1835).

2) Mém. sur une nouv. Classif. d. Aran., p. 438.

3) This name (which is from ἥμερος, tame, and ἀράχνη, spider) ought of course to be written *Hemerarachne*.

a. Oculi duo anteriores, reliquis plerumque manifeste majores, plus minus longe disjuncti. Series oculorum postica, desuper visa, procurva.

1. Mandibulæ sub-porrectæ, ungue longo et valido. Ungues tarsorum bini. . . . . 5. *Dysdera.*

2. Mandibulæ verticales, ungue brevi. Ungues tarsorum trini. 6. *Harpactes.*

b. Oculi omnes inter se valde appropinquantes, in tria paria dispositi, 2 utrinque, 2, reliquis majores, in medio. Tarsi articulo libero unguifero aucti. Ungues tarsorum biui. . . . . 7. *Oonops.*

§§ Oculi aut 6 valde imperfecti, aut nulli. Ungues tarsorum trini. . 4. *Stalita.*

Gen. 1. SEGESTRIA LATR. 1804.

Deriv.: *segestre*, a coarse coverlet.

Syn.: 1804. Segestria LATR., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 134.
1861. „ WESTR., Aran. Suec., p. 298.
1864. „ BLACKW., Spid. of Gr. Brit., II, p. 373.
1864. „ SIM., H. N. d. Araignées, p. 98.

Type: *Segestria senoculata* (LINN.).

The superior tarsal claws are powerful, somewhat long, with pretty many long, almost parallel, vertical, comb-teeth, of which the outermost are somewhat sinuated and divergent; in front of these the free extremity of the claw is somewhat swelled at the root. The inferior claw is small but stout, with one long, fine, curved tooth. On the 4th pair the teeth of the superior claws are somewhat fewer in number (about 7 in *S. senoculata*, which on the claws of the 1st pair has about 9). The palpal claw is weak, slightly curved, toothless.

* Gen. 2. SCHŒNOBATES BLACKW. 1850.

Deriv.: *σχοινοβάτης*, rope-dancer (*σχοῖνος*, rope; *βαίνω*, go).

Syn.: 1850. Schœnobates [Schænobates] BLACKW., Descr. of some newly disc. spec. etc., *in* Ann. and Mag. of Nat. Hist., 2 Ser., IV, p. 343.
1864. „ „ ID., Spid. of Gr. Brit., II, p. 375.

Type: *Schœnobates Walkeri* (BLACKW.).

Of this genus only one species, and of that only one specimen has been found. It is only on BLACKWALL'S authority that I have taken it up in this family.

Gen. 3. ARIADNE Sav. et Aud. 1825—27.

Deriv.: Ἀριάδνη, *Ariadne*, mythol. proper name.

Syn.: 1825—27. Ariadne [Ariadna] Sav. et Aud., Descr. de l'Égypte, (Éd. 2:) XXII, p. 308.
1837. Dysdera Walck., H. N. d. Ins. Apt., I, p. 261 (*ad part.:* "3e Fam. Les Ariadnes, *Ariadna*").
1864. „ Sim., H. N. d. Araignées, p. 105 (*ad partem*).

Type: *Ariadne insidiatrix* (Forsk.).

In everything, except the position of the eyes, *Ariadne* comes much nearer to *Segestria* than to *Dysdera*, to which last genus it has been aggregated by Walckenaer and several others. Latreille [1]) and C. Koch [2]) however recognize it as an independent genus. Like *Segestria*, *Ariadne* is remarkable for *keeping the 3 first pairs of legs stretched forwards*, and only the 4th pair backwards. — *A. insidiatrix*, of which I have specimens which I caught in Rome, where that species is common, is in habits and industry quite similar to *Segestria Florentina* and *Filistata testacea*. — I am not aware that any species of this genus has previously been adduced as belonging to the fauna of Europe.

The orthography *Ariadne* is surely preferable to *Ariadna*, as being the ordinary Latin form of the word. — Of *Ariadne* Dolesch. vid. p. 63.

The superior tarsal claws in *A. insidiatrix* are stout and powerful, pretty much and rather uniformly curved, gradually diminishing in breadth from the base, with 7—8 coarse, somewhat divergent comb-teeth; the inferior claw is small but powerful, with *one* little tooth. The superior tarsal claws on the 4th pair have but about 4 teeth. The female's palpal claw is small and toothless.

Gen. 4. STALITA Schiödte. 1847.

Deriv.: στηλίτης, belonging to pillars (στήλη, *Dorice* στάλα, pillar).

Syn.: 1847. Stalita Schiödte, Forelöbig Beretn. om d. underjord. Fauna, p. 80.
1849. „ id., Bidr. t. d. underjord. Fauna, p. 22.

Type: *Stalita tænaria* Schiödte.

Through the kindness of Prof. Schiödte I have had the opportunity of comparing a male specimen of the typical species, the true *S. tænaria*,

1) Cours d'Entom., p. 514. 2) Die Arachn., X, p. 90.

with the spider described by KEYSERLING [1]) as *St. tœnaria*, which, as SCHIÖDTE suspected, is quite a different species from the genuine *St. tœnaria* so accurately described by this latter author. This is in fact easily seen since the appearance of SCHIÖDTE'S paper: On the genus Stalita [2]), in which special attention has been paid to the points in which the last mentioned spider differs from KEYSERLING'S description. Of KEYSERLING'S species I possess a full-grown ♀, $8^{mm.}$ long, exclusive of the mandibles, which are of $2^{mm.}$ length; it agrees in every essential particular with the description given by KEYSERLING. The length of the cephalothorax is $5^{mm.}$, and the breadth full $3^{mm.}$, the breadth of the pars cephalica little more than $2^{mm.}$. The length of the pars cephalica is a little greater than its breadth, and it is tapering behind. The mandibles are thinly covered with hairs on the whole of the dorsal surface, but more thickly hairy at the extremity, along the claw-furrow. The posterior edge of the claw-furrow has two teeth. The last joint of the palpus is longer and slenderer than the preceding joint. The patellæ are destitute of spines. The superior tarsal claws are long, slender, and much curved, with about 13 long, closely set comb-teeth; the toothless part of the claw is very long and much bent downwards. The inferior claw is long, slender and abruptly inflected downwards, and without teeth. All this refers to the 1^{st} pair of legs. On the 4^{th} pair the claws are still longer and slenderer, with about 6 divergent teeth near the base. The palpal claw is small and toothless. The abdomen is $4\frac{3}{4}^{mm.}$ long and $2\frac{1}{2}^{mm.}$ broad, with thin fine hairs. The posterior stigmata are as broad as the anterior.

A particular interest is attached to this spider, (which I call *S. Schiœdtei*), from the circumstance of its having *six rudimentary eyes!* In position these eyes agree nearest with those of *Ariadne* (which genus also, like *Stalita*, has 3 claws on the tarsi). They are small like points, about equal in size, and rather lighter in colour than the cephalothorax, and therefore easily visible with a good common magnifying lens, and occupy an area the breadth of which is about a third of that of the head, and which is about three times as broad as it is long. They are arranged in two rows very near the margin of the clypeus, 4 eyes in the posterior, and 2 in the anterior row. The posterior row is straight and considerably longer than the anterior. The two posterior central eyes are somewhat nearer to each other than to the lateral eyes. The distance between the two lateral eyes is about two eye-diameters, and perhaps somewhat greater than the

1) Beschr. einer neuen Spinne aus d. Höhlen v. Lesina, p. 2 (540).

2) Om slägten Stalita, p. 4—5 (74—75).

distance between the two anterior eyes and the very low clypeus, and equal to about $\frac{1}{3}$ of the distance between the two anterior eyes. — The specimen of *S. Schiœdtei* here described was kindly presented to me by Count Keyserling.

As to *S. tœnaria*, which shows no traces of eyes, I need but refer to Schiödte's description of that species (locis cit.).

Gen. 5. DYSDERA Latr. (1804).

Deriv.: *δύσδηρις*, hard to contend with (*δυς-*, ill-; *δῆρις*, contention) [1].

Syn.: 1804. Dysdera Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 134 (*ad partem*).
1837. „ Walck., H. N. d. Ins. Apt., I, p. 261 (*ad part.:* "1e Fam. Les Agones, *Agonœ*").
1864. „ Blackw., Spid. of Gr. Brit., II, p. 369 (*ad partem*).
1864. „ Sim., H. N. d. Araignées, p. 105 (*ad partem*).

Type: *Dysdera punctoria* (Vill.). (*D. erythrina* Walck.).

The tarsal claws in this genus are only *two* in number, and a claw-tuft is met with under them, whereas in *Ariadne* and *Harpactes*, which are usually united with *Dysdera*, there are 3 claws, and no claw-tuft (as is the case with all spiders that have 3 claws). The superior tarsal claws are slender, somewhat sinuated at the base, outwards curved strongly and almost into a semicircle, with several (in *D. punctoria* about 10, in *D. punctata* C. Koch about 5) long saw-teeth, issuing from the side of the claw from about its middle to near the extremity, which is thus rather short. The claw-tuft is thickly set, and consists of linear hairs, slightly dilated at the extremity only. The palpal claw is small and toothless.

Gen. 6. HARPACTES Templeton. 1834.

Deriv.: *ἁρπακτής*, robber (*ἁρπάζω*, rob).

Syn.: 1834. Harpactes Templ., On the Spid. of the gen. Dysdera, p. 401.
1837. Dysdera Walck., H. N. d. Ins. Apt., I, p. 261 (*ad part.:* "2e Fam. Les Agores, *Agorœ*").
1861. „ Westr., Aran. Suec., p. 301.
1864. „ Blackw., Spid. of Gr. Brit., II, p. 369 (*ad partem*).
1864. „ Sim., H. N. d. Araignées, p. 105 (*ad partem*).

Type: *Harpactes Hombergii* (Scop.).

1) In Agassiz' Nomencl. Zool. it is derived from *δυς-*, and "*δέρη*, collum."

Not only the presence of a third tarsal claw, but also peculiarities in the structure of the parts of the mouth, and a longer, slenderer form of the body, distinguish this genus from *Dysdera*, to which it is otherwise very similar, and with which it is commonly united. — The superior tarsal claws of the typical species are slender, curved nearly to a semicircle, and provided with about 6 long, parallel, vertical comb-teeth. The inferior claw is toothless.

The genus *Pylarus* HENTZ [1]) is near related to *Harpactes*.

Gen. 7. OONOPS TEMPL. 1834.

Deriv.: *ὠόν*, egg; *ὤψ*, eye.

Syn.: 1834. Oonops TEMPL., On the Spid. of the gen. Dysdera, p. 404.
1837. Deletrix BLACKW., Charact. of a new gen. etc., p. 100.
1847. Dysdera WALCK., H. N. d. Ins. Apt., IV, p. 382 (*ad part.:* "4e Fam. Les Albionides, *Albionidæ*").
1864. „ SIM., H. N. d. Araignées, p. (105,) 455 (*ad partem*).
1864. Oonops BLACKW., Spid. of Gr. Brit., II, p. 377.

Type: *Oonops pulcher* TEMPL.

The typical species of this interesting genus, of which the Rev. O. P. CAMBRIDGE has kindly sent me specimens, is found not only in Great Britain and Ireland, but also in Italy, according to CANESTRINI and PAVESI [2]).

The two tarsal claws of *O. pulcher* are weak and slender, uniformly and rather slightly bent, with 5 or 6 tolerably coarse, pointed comb-teeth directed somewhat forwards. In stead of a claw, the female's palpus is at the extremity provided with a strong conical process (in a young specimen). By the presence of a small separate claw-joint this spider forms a transition to the *Scytodoidæ;* I place it among the *Dysderoidæ* principally on the authority of BLACKWALL, for I have not myself been able to see more than two stigmata in the somewhat damaged specimens I possess.

Fam. VI. FILISTATOIDÆ.

Syn.: 1867. Filistatidæ AUSS., Die Arachn. Tirols, I, p. 140.

This family comprises only the genus *Filistata*, which was referred by WALCKENAER to "les *Théraphoses*" or our *Territelariæ*, although it has

1) Aran. of the United States, *in* Boston Journ. of Nat. Hist., IV, p. 225.
2) Araneidi Italiani, p. 27.

6 spinners, the mandibular claw directed inwards, not backwards, and only *two* air-sacs, so that it is destitute of all the characteristics that usually distinguish the spiders belonging to the sub-order *Territelariæ*. Even Latreille, who first [1]) referred it to his "*Tubitèles*", assigned it in his later works, in consequence of the erroneous assumption that it had 4 "pulmonary" sacs, to his *Tetrapneumones* or the Territelariæ. C. Koch [2]) gives it the same systematic position. Dugès referred it to his "*Microgmathes*" or "*Scythodés*" [3]), a group, that comprises spiders of widely separated families, but which agree with each other in the structure of the mandibles. (Conf. p. 99). Simon, who rightly insists upon the relationship of the Filistatoidæ with the *Drassoidæ* and other *Tubitelariæ*, forms for them a separate "tribus", "*Filistatiens* ou *Mygalo-drasses*", within the family "*Drassiformes*" [4]). Lastly, in Ausserer [5]), as also in Canestrini and Pavesi [6]), we find the *family Filistatidæ* placed between *Mygalidæ* and *Dysderidæ*.

It is strictly speaking only by the position of the eyes, that *Filistata* agrees more with the *Territelariæ* than with the *Tubitelariæ*, and it seems chiefly to have been this agreement that induced Walckenaer and C. Koch to refer *Filistata* to the first-named sub-order. Mandibles directed somewhat forwards and united at the base [7]), form a feature occurring in many other genera which have never been referred to the Territelariæ, and especially among the *Scytodoidæ*, which we unreservedly consider as the nearest relatives of the *Filistatoidæ*. The parts of the mouth exhibit the same structure in both these families, and also in *Filistata* the weak mandibles, armed with a very small claw, remind an observer of the two-fingered claw of the *Opiliones*, by their having a spine or tooth at their extremity opposite the claw. Both families appear to have been developed from a common root: the *Scytodoidæ* form the beginning of the series of genera, which constitute the sub-orders *Retitelariæ* and *Orbitelariæ*, while from the *Filistatoidæ* and forms nearly related to them the other sub-orders have probably descended.

The general appearance of the Filistatoidæ is very peculiar and unlike that of other spiders: it reminds one most of certain *Scytodoidæ (Loxosceles)* and *Theraphosoidæ*, but also of some *Tubitelariæ*, e. g. *Uroctea*. Their

1) Cuv., Règne Anim., III, p. 83. (1817).
2) Uebers. d. Arach.-Syst., 1, p. 35; ibid., 5, p. 76.
3) Observ. sur les Aran., p. 106.
4) Hist. Nat. d. Araignées, p. 95.
5) Die Arachn. Tirols, I, p. 140.
6) Aran. Ital., p. 23.
7) In *F. capitata* Hentz, they are however *not* united at the base, according to Hentz, Aran. of United States, *in* Bost. Journ. of Nat. Hist., IV, p. 228.

generally strong extemities, as also their habits and the structure of their webs at once separating them from the *Retitelariæ*, they cannot be referred to any other sub-order than the Tubitelariæ. If by a certain outward appearance, by the structure of the mandibles, and by the form and armature of the female's palpi, they exhibit affinities with the *Urocteoïdæ*, they, on the other hand, as LUCAS [1]) has remarked, and as I have myself in Southern Europe observed, agree with *Segestria*, and especially with *S. Florentina*, in their habits and economy: the tubular web has just the same appearance, and is met with in the same localities (especially in the holes and crevices of old walls), as that of the last mentioned spider. Also HENTZ remarks concerning this genus, that "by its habits it is closely related to *Pylarus* and to *Segestria*" [2]).

Gen. 1. FILISTATA LATR. 1810.

Deriv. uncertain: *filum*, thread; *stare*, stand. Or perhaps *filum* and ἵστημι, set, place (ἱστός, warp, web).

Syn.: 1810. Filistata LATR., Consid. gén. sur les Crust., les Arachn. et les Ins., p. 121.
1839. Teratodes C. KOCH, Die Arachn., V, p. 6.
1864. Filistata SIM., H. N. d. Araignées, p. 95.

Type: *Filistata testacea* LATR.

In the typical species the superior tarsal claws are very strong, long, much and uniformly curved, with about 12 long, strong, almost parallel, almost equally long comb-teeth; the free extremity of the claw is not long, a little swelled at the root below. The inferior claw is very small, but strong, with two very long, strong teeth, sitting close together. The palpal claw of ♀ is long, of almost uniform substance, much and regularly curved, armed from the base throughout about two thirds of its length with about 16 rather short, strong, parallel comb-teeth slightly increasing in length outwards, the points of which form a much curved line following the direction of the claw.

Sub-ordo IV. TERRITELARIÆ.

Syn.: Vid. infra sub Fam. *Theraphosoidæ*.

As an, in cases of doubt, decisive characteristic of the spiders belonging to this sub-order, we consider the to them peculiar direction of the

1) Observ. sur le genre Eriodon, p. 312.
2) Aran. of United States, *in* Bost. Journ. of Nat. Hist., IV, p. 227.

mandibular claw: it moves, as is known, in a vertical plane very nearly parallel to the longer axis of the body, and, when at rest, is directed *backwards;* in all other spiders on the contrary, it moves in a plane almost at right angles to the longer axis of the body, and lies with its point turned *inwards*, sometimes obliquely inwards and backwards. The mandibles themselves are generally more projecting and larger than in other spiders, and can only be opened to an inconsiderable amount. The Territelariæ have generally *four* air-sacs; the spinners are with few exceptions only four in number: the superior are usually considerably longer than the inferior, and consist of three, sometimes (at least in the genera *Diplura* C. Koch and *Eriodon* Latr. or *Missulena* Walck.) of four joints. The tarsal claws are mostly two, sometimes three in number.

The Territelariæ approximate on the one side to the *Tubitelariæ (Filistatoidæ* and *Dysderoidæ)* and on the other to the *Citigradæ*. The genus *Catadysas* Hentz forms an evident transition to this latter sub-order, with which they also in their habits show many analogies. That some of the female Theraphosoidæ carry their young upon their backs, just like species of the genus *Lycosa*, has been long known: Latreille states it to be the case with *Nemesia Sauvagesii* (Rossi) or *Mygale fodiens* Walck. [1]), and Abbot has, according to Walckenaer [2]), observed the same phænomenon in *Actinopus Abbotii* (Walck.). Lincecum relates [3]) concerning certain species found in Texas: "Two or three species of *Mygale* carry a sack well filled with eggs *attached to the tip of their abdomen*, and when the young ones hatch out, they take them on their backs and carry them like the *Mygale Hentzii*."

The European Territelariæ all belong to one family, the *Theraphosoidæ*, all the species of which have *four* pulmonary sacs, and *at least four* spinners. Of the families *Liphistioidæ* and *Catadysoidæ* see pag. 43.

Fam. I. THERAPHOSOIDÆ.

Syn.: 1802. Gen. Mygale Walck., Faune Par., II, p. 241.
1805. Gen. Theraphosa id., Tabl. d. Aran., p. 1.
1817. "Territèles" Latr. *in* Cuv., Règne Anim., III, p. 79.
1823. Terrestres Sund., Gen. Aran. Suec., p. 10.

1) See Walck., Faune Franç., Arachn., p. 5.
2) Hist. Nat. d. Ins. Apt., I, p. 248.
3) The Tarantula, p. 411.

1825. Tetrapneumones LATR., Fam. Nat. du Règne Anim., p. 312.
1830. Theraphosæ SUND., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1829, p. 203.
1833. Mygalides ID., Consp. Arachn., p. 28.

It is well known that CUVIER in the year 1800 gave the name of *Mygale* to a genus of *Mammals*, and that WALCKENAER first in 1802 ("dans un Mémoire lu à la Société Philomatique de Paris": see WALCK., Faune Parisienne, II, p. 249) separated the spiders belonging to the family before us from the others or "spiders properly so called" (*Aranea* WALCK.) under the name of *Mygale*. Some naturalists have curiously enough attempted to avoid the confusion thus introduced, by altering CUVIER'S generic name into *Myogale* or *Myogalea* — which however is only another way of spelling *Mygale* — instead of, in accordance with the law of priority, altering the more recent name or replacing it with another, as reasonableness requires. It can moreover hardly be denied that the name *Mygale*, as that of a genus of spiders, is ill chosen: the Greek word *μυγαλῆ*, *μυγαλέη* or *μυογάλη* signifies a *shrew (Sorex)*, and nothing else. Nevertheless, in spite of the requirements of consistency, we should perhaps not have ventured to exchange this generally known and accepted generic name for another, if the following circumstances had not contributed to induce us to such a step. First and principally the genus *Mygale* has by more recent authors been resolved into several smaller generic groups, by C. KOCH [1]) for inst. into *seven*, so that by him the name of *Mygale* is only retained for a group comprising but two species, *M. Blondii* and *M. Javanensis*, whereas all the other forms described by him bear other generic names — and the matter is accordingly reduced merely to the giving of another name to the above mentioned little group; moreover that other name needs not be a new and previously unknown denomination, for we have at hand an appropriate generic name formed by WALCKENAER himself in 1805, namely *Theraphosa*, which in the original definition of that genus is absolutely synonymous with *Mygale*. This word is not, as has been sometimes supposed, a plural, but a true generic name in the singular number [2]), and has already in 1830 been used by EICHWALD [3]) instead of *Mygale*. In the Tableau des Aranéides WALCKENAER divided "*les Aranéides*" into two great "Divisions",

1) Uebers. d. Arachn.-Syst., 5, p. 72—75.

2) It is so taken by e. g. SUNDEVALL, as is evident from the following words: "WALCKENAER considered that he had sufficient reason to separate the Bird-spiders and the species most nearly allied to them, as a separate genus, *Theraphosa*, from LINNÉ'S *Aranea*." Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1829, p. 190.

3) Zool. spec., II, p. 73.

Theraphosa and *Aranea* (just as he had before divided them into *Mygale* and *Aranea*), after which each of these great generic groups was subdivided into a number of smaller groups, "genres": *Theraphosa* into *Mygale*, *Oletera* and *Missulena; Aranea* into *Lycosa*, *Dolomedes*, *Ctenus* etc. The name *Aranea* has been entirely abandoned as a generic name, simply because the whole Order of Spiders ought to be called *Araneæ;* but any sound reason for not preserving the name *Theraphosa* for some portion of the forms to which it has once belonged, it would assuredly be hard to assign. We propose therefore with Eichwald to replace the name *Mygale*, which had already been appropriated by Cuvier, with *Theraphosa*, giving *Th. Blondii* as type of the genus. *Theraphosa* (Walck.) nob. is therefore = *Mygale* (Walck.) C. Koch 1850.

We also desire to call attention to the following circumstance. When, in 1811, Olivier [1]) adopted Walckenaer's genus *Mygale* as separate from *Aranea*, he restricted it to "*les Araignées mineuses*", excluding all the other *Mygale*-species or "*les Araignées aviculaires*", which he referred to *Aranea*. He was followed by Lamarck [2]), who also (in the year 1818) received into the genus *Mygale* only "les Araignées mineuses"; but for "les Araignées aviculaires" this author formed a separate genus, *Avicularia* Lam. [3]). It was not till several years later (1825), that Latreille gave to "*les Araignées mineuses*" the name "*Ctenize*", and in opposition to Olivier's and Lamarck's limitation of the genus *Mygale*, applied that name to "*les Araignées aviculaires*". It is accordingly evident that *if* the name *Mygale* were to be preserved to any genus of spiders at all, it ought, according to the law of priority, to belong to that genus which is usually called *Cteniza* Latr. (*Nemesia* Sav. et Aud.). — We have preferred the denomination *Theraphosa* to that of *Avicularia* for the species of "les Araignées aviculaires", which in Koch and Simon bear the name of *Mygale*, and thus have been by them considered as types of the genus *Mygale* Walck., partly because *Theraphosa* is the older appellation of the two, partly because the name *Avicularia* ought in our opinion to be reserved for that group of species among "les Mygales aviculaires", which comprises Linné's *Aranea avicularia*. (Vid. p. 169 sub gen. *Avicularia* (Lam.)).

We divide provisionally "les Mygales aviculaires" into the 4 following genera, which number will however doubtless hereafter, when these animals have been more accurately studied, be considerably augmented:

1) Encycl. Méth., VIII, p. 83.
2) Hist. Nat. d. Anim. sans Vertèbres, V, p. 105.
3) Ibid., p. 107.

1. *Theraphosa* (WALCK.) = *Mygale* (WALCK.) C. KOCH; 2. *Avicularia* (LAM.) = *Eurypelma* (C. KOCH); 3. *Trechona* (C. KOCH), and 4. *Diplura* C. KOCH. The first-named two genera together answer to WALCKENAER'S "*Plantigrades*", the latter two to his "*Digitigrades inermes*". "*Les Mygales (Digitigrades) mineuses*" ought to be called *Nemesia* SAV. et AUD. — The family *Mygalides* we call, in conformity with the method, in which we have formed the other family-names, *Theraphosoidæ*.

If the genus *Atypus* have really, as LATREILLE [1]) and DUGÈS [2]) expressly state, *six* spinners, and not only four, as WALCKENAER [3]) says, that genus ought to be made the type of a separate sub-family, *Atypinæ*, in contradistinction to the ordinary Theraphosoidæ *(Theraphosinæ)*, which are provided with only *four* spinners. Also in *Eriodon formidabile* CAMBR. the spinners, according to CAMBRIDGE [4]), are 6 in number. According to LUCAS [5]) however the oldest known species of that genus, *E. occatorium* (WALCK.), has only two pair of spinners (?).

The European genera included in the family Theraphosoidæ are the following:

A. Maxillæ versus basin dilatatæ: palpi dilatationi lateris affixi. Cephalothorax anteriora versus dilatatus. . . . . 1. *Atypus.*

B. Maxillæ angustæ, sub-cylindratæ; palpi apici earum inserti.

a. Area oculorum $2\frac{1}{2}$—3-plo latior quam longior. Cephalothorax antice alte elevatus. Pedes breves, robusti, 3^{tii} paris reliquis breviores. 2. *Cyrtauchenius.*

b. Oculi conferti, eminentiæ communi parvæ impositi; area, quam occupant, c:a dimidio — duplo tantum latior quam longior.

I. Mandibulæ ad apicem dentibus vel lamellis corneis liberis, rastellum vel pecten formantibus, armatæ. Pedes apicem versus plus minus attenuati; ungues ipsi apici tarsorum inserti. . . . . 3. *Nemesia.*

II. Mandibulæ rastello carentes.

* Pedes versus apicem attenuati, unguibus ipsi apici tarsorum insertis.

1. Mamillæ superiores (posteriores) articulis quaternis. . 4. *Diplura.*

2. Mamillæ superiores articulis trinis. . . . . 5. *Trechona.*

[** Pedes robusti, versus apicem vix vel parum attenuati, unguibus supra apicem tarsi insertis, retrahendis. . . . . 6. *Avicularia.*]

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1) CUV., Règne Anim., 2^{e} Éd., IV, p. 228.

2) Observ. sur les Aran., p. 197; CUV., Règne Anim., 3^{e} Éd., Arachn., p. 31, Pl. 5, fig. 2*b*.

3) Hist. Nat. d. Ins. Apt., I, p. 245.

4) Descr. of a new gen. and six new spec. of Spid., p. 267.

5) Observ. sur le genre Eriodon, p. 316.

*Gen. 1. ATYPUS Latr. 1804.

Deriv. *a priv.*, and *τυπόω*, form (accordingly, unshapely; "laid de figure": Latreille).

Syn.: 1804. Atypus Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 133.
1804. „ id., Hist. Nat. d. Crust. et d. Ins., VII, p. 168.
1805. Oletera Walck., Tabl. d. Aran., p. 7.
1861. Atypus Blackw., Spid. of Gr. Brit., I, p. 14.
1864. „ [Atypa] Sim., H. N. d. Araignées, p. 83.

Type: *Atypus piceus* (Sulzer).

The synonyms show that the nama *Atypus* has the right of priority before *Oletera*, and not *vice versa*, as Lucas [1]) has supposed.

Gen. 2. CYRTAUCHENIUS n.

Deriv.: *κυρτός*, crooked; *αὐχήν*, neck.

Syn.: 1845. Cyrtocephalus Lucas, Note sur une nouv. esp. d'Aran. appart. au genre Actinopus, p. 58.
1845. „ id., Explor. de l'Algérie, Arachn., p. 92.
1864. „ [Cyrtocephala] Sim, H. N. d. Araignées, p. 81.

Type: *Cyrtauchenius Walckenaerii* (Lucas).

The name *Cyrtocephalus* having been already disposed of, before it was applied by Lucas to this genus (conf. p. 36, note 2), I have been obliged to give it a new denomination. — I possess a specimen (a ♀) of a species of *Cyrtauchenius*, from Corfu, given to me by Count Keyserling, which is perhaps identical, or at least very closely connected, with *C. lapidarius* (Luc.) from Crete. It is distinguished by the palpi as well as the first *two* pairs of legs being towards the extremities (on the last three joints of the legs and the last two of the palpi), on both sides and for some distance downwards, armed with a band of, especially on the last joint, closely arranged, short, blunt, very strong spines, which undoubtedly make these extremities excellent digging organs. On the 3rd and 4th pairs these joints only show a few sparse spines. Of the palpi of *C. lapidarius* Lucas [2]) states, that between the hairs that cover them, one may remark "des épines *placées çà et là*", and of the legs of the same species, that it has "le métatarse et le tarse des *trois* premières paires armés d'épines d'un

1) De la man. de vivre etc. de l'Oletera picea, p. clxx.
2) Anim. artic. de l'ile de Crète, p. 16.

brun rougeâtre". In other respects LUCAS' description accurately corresponds with the spider I have mentioned. Should this spider be found not identical with *C. lapidarius*, it may be called *C. Corcyræus*.

SIMON (loc. cit.) enters under the genus *Cyrtocephalus* [*-a*] a species "*C. lapidaria* ROULIN, Ile de Cuba", which is probably a slip of the pen for "*C. lapidaria* LUCAS, Ile de Crète". He has however not inserted this genus in his Catal. syn. d. Aranéides d'Europe.

The tarsal claws of *Cyrtauchenius* are 3 in number on each tarsus, as in *Nemesia*. The tarsi of the posterior legs are somewhat thicker towards the extremity, almost clublike. The superior or posterior spinners show only 3 distinctly separated joints.

Gen. 3. NEMESIA SAV. et AUD. 1825—27.

Deriv.: *Νεμέσιος* or *Νέμεσις*, mythol. proper name.

Syn.: 1805. Mygale WALCK., Tabl. d. Aran., p. 5 (*ad part.:* "3e Fam. Digitigrades mineuses, *Cunicularieæ*").
1811. „ OLIV., Encycl. Méth., VIII, p. 83.
[1825. "Ctenize" LATR., Fam. Nat. du Règne Anim., p. 315].
1825—7. Nemesia SAV. et AUD., Descr. de l'Égypte, (2e Éd.:) XXII, p. 302.
1827. Ctenize BERTH., LATR. Natürl. Fam. d. Thierr., p. 298.
1829. Cteniza LATR., *in* CUV., Règne Anim., 2e Éd., IV, p. 230.
1864. Mygalodonta SIM., Hist. Nat. d. Araignées, p. 75.

Type: *Nemesia cellicola* SAV. et AUD.

The most commonly received name of this genus is not *Nemesia*, but *Cteniza*, which name is first found in LATREILLE'S Familles Naturelles du Règne Animal (1825), where "*les Araignées mineuses*" are brought together under the *French* appellation "*Ctenize*". Whether the *scientific* name was intended to be *Ctenizus*, *Cteniza* or any thing else, it is not possible to see there, for the generic names, even those newly formed, appear in that work only in their French form, whence also follows (Conf. p. 4 note 1), that any right of priority cannot be claimed for the generic names there proposed. It is true that BERTHOLD, in his German translation of LATREILLE'S Familles Naturelles (1827), gave a Latin form to these new generic denominations [1]), and in the cases, in which he was the first who did so

1) He however calls LATREILLE'S "Ctenize" not *Cteniza*, but *Ctenize*, as the genus is also called by for inst. SUNDEVALL (Consp. Arachn., p. 28). That LATREILLE'S meaning was, that the name should end i *a*, is visible in his *subsequent* works, as e. g. in the edition of CUVIER'S Règne Animal published in 1829, and it has since generally received that termination.

(as is undoubtedly the case with the name in question), the time of the name's publication must be reckoned from that translation; but Savigny and Audouin had, if I mistake not, a little before its appearance, given the name of *Nemesia* to a species belonging to the "mining" spiders, and this name, as probably somewhat older, I have considered myself bounden to perfer to *Cteniza* Berth.

Simon has exchanged (*Nemesia* and) *Cteniza* for an entirely new name, *Mygalodonta*, and says concerning *Cteniza* (loc. cit. p. 76) that "cette dénomination est restée inconnue". It has therefore escaped his observation, that that name is both known and used in a work that he often cites, Koch's Die Arachniden, and Simon even himself cites (p. 453) in his account of his *Mygalodonta fodiens:* "*Cteniza Graja* Koch".

That the name *Mygale*, if it could be used of a genus of spiders, would by right belong to the genus before us, I have already (p. 163) endeavoured to show.

N. cellicola, according to O. G. Costa [1]), is met with, though rarely, in the south of Italy, at Naples. Costa states that it has 3 claws upon the tarsi of the 3rd pair only, the first pair being armed with 2, and the 2nd with but one claw respectively (!). According to Savigny and Audouin [2]) this species has however *three* claws on *each* of the tarsi, like other species of the genus.

* Gen. 4. DIPLURA C. Koch. 1850.

Deriv.: *διπλόος*, double; *οὐρά*, tail.

Syn.: 1805. Mygale Walck., Tabl. d. Aran., p. 5 ("2e Fam. Les Digitigrades inermes" *ad partem*).

1850. Diplura C. Koch, Uebers. d. Arachn.-Syst., 5, p. 75.

1864. Mygale: sub-gen. Pexionyx [Pezionyx] Sim., H. N. d. Araignées, p. 64, 68 (*ad partem*).

Type: *Diplura macrura* C. Koch.

This genus, corresponding with those of Walckenaer's "*Mygales digitigrades inermes*", which have very elongated superior spinners, consisting of 4 distinct joints, belongs to the European Spider-Fauna at least through *Mygale Calpetana* [*Calpeiana*] Walck., which, according to Walckenaer's description [3]), in this feature agrees with the species, *D. macrura* C.

1) Fauna d. Regno di Napoli, Aracn., p. 20.

2) Descr. de l'Égypte, (2e Éd.:) XXII, p. 304.

3) Hist. Nat. d. Aran., Livr. 1, n:o 8 et 9.

KOCH [1]), given by KOCH as typical of *Diplura*. Also *Mygale luctuosa* LUCAS from Spain, which is said to be very closely allied to *D.* (*M.*) *Calpetana*, and to have the superior spinners about as long as the abdomen, appears to belong to this genus; but LUCAS does not state of how many joints these spinners consist [2]).

Gen. 5. TRECHONA (C. KOCH). 1850.

Deriv.: τρέχω, run.

Syn.: 1805. Mygale WALCK., Tabl. d. Aran., p. 59 ("2e Fam. Les Digitigrades inermes" *ad partem*).
1850. Trechona C. KOCH, Uebers. d. Arachn.-Syst., 5, p. 74 (*saltem ad max. part.*).
1864. Mygale: sub-gen. Pexionyx [Pezionyx] SIM., H. N. d. Araignées, p. 64, 68 (*ad partem*).
? 1864. „ sub-gen. Eurypelma ID., ibid., p. 66 (*ad partem*).

Type: *Trechona Valentina* (DUF.).

Some of the species classed by C. KOCH under this genus, are by SIMON referred to the sub-genus *Eurypelma* ("groups" *Eurypelma* and *Lasiodora*) — whether rightly or not, I cannot venture to decide. In the species which we assign to *Trechona*, as e. g. *T. (Mygale) Valentina* (DUF.) the superior spinners have but 3 distinct joints [3]), which distinguishes them from the preceding genus, *Diplura*.

[Gen. 6. AVICULARIA (LAM.) 1818.

Deriv.: *avicularius* (bird-keeper), in the signification adopted, bird-catcher.

Syn.: 1805. Mygale WALCK., Tabl. d. Aran., p. 5 ("1e Fam. Les Plantigrades" *ad max. part.*).
1818. Avicularia LAMARCK, H. N. d. Anim. sans Vertèbres, V, p. 107 (*ad partem*).
1830. Theraphosa [Teraphosa] EICHW., Zool. spec., II, p. 73 (*ad partem*).
1850. Eurypelma C. KOCH, Uebers. d. Arachn.-Syst., 5, p. 73
1850. Lasiodora ID., ibid., p. 72
1850. Scurria ID., ibid., p. 74.
1850. Typhochlæna ID., ibid., p. 75.
(*saltem ad max. part.*).
? 1850. Trechona ID., ibid., p. 74 (*ad partem*).
1864. Mygale: sub-gen. Eurypelma SIM., H. N. d. Araignées, p. 64, 66 (*ad max. part.*).

Type: *Avicularia vestiaria* (DE GEER).

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1) Die Arachn., IX, p. 38, Taf. CCC, f. 715.
2) Conf. LUCAS, Note sur une nouv. esp. d'Aran. qui habite l'Esp. mérid., p. 17.
3) DUFOUR, Observ. sur quelques Arachn. quadripulm., p. 100, 102.

As we remarked above (p. 163), Lamarck divides Walckenaer's *Mygale* into two genera, *Avicularia* and *Mygale*, of which the former is synonymous with *Mygale* Latr., the latter with *Cteniza* [Latr.] Berth. or *Nemesia* Sav. et Aud. As type for *Avicularia* Lam., I propose *Aranea avicularia* Linn. (*Ar. vestiaria* De Geer, *Avicularia canceridea* Lam.), partly for the sake of the name, and partly because it is the first species entered by Lamarck under the genus *Avicularia*. As it was for this species and forms nearly related to it, that C. Koch proposed the genus *Eurypelma*, it will be to the species of that genus that the older name *Avicularia* ought in the first place to be applied. The other new genera cited in our *Syn.*, which Koch formed at the cost of Walckenaer's "*Mygales plantigrades*", may probably for the present be united with *Eurypelma* or *Avicularia*.

I am not convinced, that any species belonging to this genus is met with in Europe. As however Simon in his sub-genus *Eurypelma* — which he states to have "tarses élargis, garnis de brosses adhérentes; griffes très-retractiles", and which thus by these characteristics agrees with *Avicularia* (Lam.) nob. — includes e. g. *Mygale (Trechona) icterica* C. Koch from Greece, which species is to me unknown, I consider that I ought, at least provisionally, to insert here the genus *Avicularia*.]

Sub-ordo V. LATERIGRADÆ.

Syn.: Vid. infra sub Fam. *Thomisoidæ*.

In their peculiar manner of moving — with about as much ease sideways or backwards as forwards, and with their femora depressed and stretched out sideways, the following joints of the legs moving towards the femora in a plane more nearly approaching the horizontal than the vertical plane — the spiders belonging to this sub-order have a distinctive mark, by which, as is well known, they may usually without difficulty be distinguished from all other spiders. Of the European genera, *Micrommata* (Latr.) is the only one, which has not the crab-like appearance that is peculiar to the other Laterigradæ. Many of the great exotic forms of this sub-order (especially those of the genus *Heteropoda*), present a striking analogy with certain *Theraphosoidæ;* but it is to the *Drassoidæ* in the sub-order *Tubitelariæ*, that the Laterigradæ are most nearly related, and between which and them it is most difficult to assign the line of demarcation. Like the

Drassoidæ, they have only *two* claws at the extremity of the tarsi [1]): as in them, the eyes generally form two transversal rows; but these rows usually enclose a crescent-shaped or circular-segmental area, and are but rarely nearly parallel or curved towards each other [2]). Most frequently (also in *Micrommata*) the second pair of legs is longer than the others, which on the other hand, as far as I am aware, is never the case with the *Drassoidæ*. The maxillæ are usually narrow and strongly inclined towards the labium, the mandibles small and conical: nevertheless there are numerous exceptions to this, of which *Heteropoda* and the genera nearly connected with it are striking examples.

The species of this sub-order, at least the European ones, may for the present be united in a single family, *Thomisoidæ*, to which we also refer the wonderful and but little known genus *Anetes* MENGE, which is stated to be destitute of both spinners and tarsal claws.

Fam. I. THOMISOIDÆ.

Syn.: 1817. "Latérigrades" LATR., *in* CUV., Règne Anim., III, p. 91.
1823. Retrogradæ SUND., Gen. Aran. Succ., p. 18.
1825. Laterigradæ LATR., Fam. Nat. du Règne Anim., p. 315.
1833. Thomisides SUND., Consp. Arachn., p. 27.

LATREILLE in 1804 [3]) formed, at the expense of LINNÉ'S *Aranea*, for spiders belonging to this family the genera *Heteropoda*, *Misumena* and *Micrommata*. As the characteristic difference between the two first mentioned,

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1) A remarkable exception is *Sparassus abnormis* BLACKW., which has only "a single claw at the extremity of each tarsus" (BLACKW., A list of spiders captured in the South-East region of Equat. Africa, p. 457). This species ought probably to form a separate genus.

2) In *Eripus* WALCK. the eyes are arranged in 3 or 4 (?) transversal series. In *Platythomisus* DOLESCH. the eyes form two rhomb-like groups, situated far apart at the two corners of the forehead; in *Arcys* WALCK., *Heterognatha* NIC. and *Anetes* MENGE on the contrary the lateral eyes are far removed from the central eyes, much about as in *Epeira*. In *Stephanopis* CAMBR. the eyes are arranged in a ring, in *Diphya* NIC. they have again about the same position as in *Ocyale*. *Thomisus yolophus* DOUM. has but 6 eyes, and ought of course to form a separate genus, for which we propose the name *Daradius* (from *Daradus*, the river Senegal); *Sicarius* WALCK. or *Thomisoides* NIC., which, I suspect, belongs to this family, has also only 6 eyes.

3) Nouv. Dict. d'Hist. Nat., XXIV, p. 135.

he adduces the different relative length of the two posterior pairs of legs: they are in *Misumena* "brusquement plus menues et plus courtes que les autres", which is *not* the case in *Heteropoda*. *Micrommata*, according to Latreille, differs from both these genera in having the maxillæ straight, not inclined to the labium. The next year Walckenaer (in Tableau des Aranéides) united *Heteropoda* and *Misumena* in one genus, which he called *Thomisus*, instead of retaining for it, as in justice he ought to have done, one of the Latreillian names. The genus *Micrommata* he adopted unaltered, but gave also to it a new name, *Sparassus* [1]). In the Tabl. des Aran., *Thomisus* is divided into three sections: "les *Hétéropodes*", answering to *Misumena*, and "les *Équipèdes brévirostres*" and "les *Équipèdes longirostres*", both together answering to *Heteropoda* Latr. In Faune franç., Arachn., Livr. 11 et 12 (1825 ?), the French forms of Walckenaer's *Thomisus* were by that author again divided between two genera, *Philodromus* and *Thomisus*, the first of which corresponds to a part of *Heteropoda* Latr., the last to *Misumena* Latr. In the same work, a few years later (1830), the genus *Delena* was proposed (p. 110): afterwards Walckenaer, as is known, created or adopted several new genera formed at the expense of his *Thomisus: Selenops*, *Clastes*, *Arcys*, *Eripus*, *Olios* (= *Sarotes* Sund.). — Walckenaer soon perceived the intimate connexion between *Micrommata* Latr. or *Sparassus* and the spiders, which in his Tabl. d. Aran. form the 8th family of *Thomisus* (*Thom. leucosius* or *Ar. venatoria* Linn. and others, for which he afterwards formed the genus *Olios*): in Faune Franç., loc. cit. we even find these latter referred to *Sparassus*, whereas Latreille had united them with the species of *Philodromus*, with which they have far less affinity. — The very different development of the posterior, compared with the anterior extremities in *Misumena* or *Thomisus* on the one side, and *Heteropoda (Philodromus)* and *Micrommata* on the other, probably still affords the best basis for the division of the *Thomisoidæ* into larger groups, after the resolution of these old genera into a number of smaller; this basis has gained increased stability since attention has been called (by Dugès, Ohlert, and others) to the presence of *hair-tufts* (claw-brushes, claw-tufts, as I call them) under the tarsal claws in the last two Latreillian genera, and the absence of them in the first-named. Simon also divides, chiefly on that principle, his family "*Thomisiformes*" into two tribes, "*Philodromiens*" and "*Tho-*

1) Latreille soon submitted in part to this usurpation, and himself adopted a couple *(Thomisus, Philodromus)* of the names imposed by Walckenaer. But this of course does not authorize us here any more than elsewhere to neglect the law of priority.

misiens", uniting *Micrommata (Sparassus)* with the former [1]). The same two groups are also adopted by PRACH [2]), who calls them *Philodromi* and *Cancroides*. According to our method they constitute sub-families, and may be called *Philodrominæ* and *Thomisinæ*. The sub-family *Anetinæ* we have added merely *provisionally* for the as yet too imperfectly known genus *Anetes* MENGE.

The exotic genus *Arcys* WALCK. [3]) ought, it seems to me, to be considered as the type of a separate sub-family, *Arcyinæ*, which shows strong analogies with certain *Epeiroidæ*, as *Gasteracantha* (SUND.) and *Peniza* THOR. [4]). With the Arcyinæ, *Anetes* might *perhaps* also be united.

WESTRING and BLACKWALL have divided the *Thomisoidæ* belonging to the European Fauna, with which they were acquainted, into only three genera, *Thomisus*, *Philodromus* and *Sparassus*. C. KOCH detached from *Thomisus* the genus *Xysticus*, and from *Philodromus* the genera *Artamus* and *Thanatus* [5]), which three new genera have been adopted by SIMON, OHLERT and others. SIMON adds one more European genus, *Oxyptila* [6]). SIMON however in a paper lately published [7]) has abandoned his former division of the Thomisoidæ. Not satisfied with taking the genus *Thomisus* in as extensive a meaning as that which it bears in WALCKENAER'S latest works, he also unites with it *Monastes* LUC. (*Monæses* NOB.), and even wishes to suppress *Philodromus* WALCK., because that genus only differs from *Thomisus*, "by a greater equality between the eight legs." But the greater part of the European genera of e. g. the family *Attoidæ* adopted by SIMON [8]), are most assuredly as nearly connected with each other, and exhibit among themselves quite as evident transitions as the above Thomisoid genera, and it cannot be right in estimating the value of generic characteristics to follow one rule with one family and another with another [9]).

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1) Hist. Nat. d. Araignées, p. 392. 2) Monogr. d. Thomisiden v. Prag, p. 8 (604).

3) I possess one species of the genus *Arcys* from New Holland, kindly presented by Prof. LEUCKART, which appears to be identical with *A. lancearius* WALCK. Species of that genus have else only been found in South America (Brazil, Chili).

4) Vid. THORELL, Engenies Resa, Arachn., 1, p. 10.

5) Uebers. d. Arachn.-Syst., 1, p. 25—28.

6) Hist. Nat. d. Araignées, p. 440.

7) Sur quelques Araignées d'Espagne, p. 285.

8) SIMON, Monogr. d. espèces Europ. de la fam. d. Attides, p. 6 (16).

9) The very principle on which SIMON'S view of the connexion of the above-mentioned Thomisoid genera appears to rest, viz. that all genera, which gradually pass into each other, ought to be united in one, appears to me quite wrong. The case is just the same with genera as with families, orders, classes, etc., nay even

We arrange the European Thomisoidæ under the following genera:

§ Mamillæ ut et ungues in apice tarsorum adsunt.

* Pedes 4 posteriores reliquis non vel parum graciliores, sæpissime iis non vel parum breviores. Tarsi in apice sub unguibus fasciculis duobus pilorum plus minus dilatatorum instructi. . . . . I. Philodrominæ.

A. Utraque oculorum series ex oculis 4 composita.

a. Oculi medii antici vix vel non longius a margine clypei quam a mediis posticis remoti. Maxillæ plerumque rectæ et parallelæ. (Fasciculi unguiculares spississimi, ex pilis longis, tenuibus, in ipso apice tantum paullo dilatatis constantes).

1. Series oculorum antica paullo recurva, postica, desuper visa, paullo procurva. (Oculi intermedii in trapezium antice angustius dispositi). Genua pedum altius elevata. . . . . 1. *Micrommata.*

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with the two great main divisions of the organic world, the animal and vegetable kingdoms: all these various kinds of systematic unities have been formed on the strength of a certain, greater or less, number of common features, which the natural productions united under them seem to us to possess, and although we see now a greater, now a less saltus between the most nearly related coordinate groups, yet the differences in this respect do not affect the propriety of considering them as independent genera, families, orders, etc., provided only their *typical* forms show the amount of peculiarities, which one assumes to be necessary for a group to be acknowledged as possessing the significancy of a genus, family, etc., and provided some *sure*, even if insignificant, feature can be pointed out as determining in doubtful cases the limit of the group. The groups, which, like e. g. the *genera Dinopis* and *Hyptiotes* among Spiders, or like this and most other *orders* within the class of Arachnoidea, do not exhibit transitions to any other group, are comparatively few; and how vast differences in this respect are visible between e. g. the different orders of the class *Crustacea* on the one and of the *Arachnoidea* on the other hand! And yet surely no one will deny, that for inst. *Copepoda* and *Branchiopoda* are as natural and rational orders as *Araneæ* and *Opiliones*, although the boundary between the former is not so sharply defined, but that the same genus (e. g. *Argulus*) is referred by some authors to the Copepoda and by others to the Branchiopoda. Precisely similar to the relation between these two *orders*, is that between many *genera*, and among them that between *Thomisus*, *Monæses* and *Philodromus:* transitions there are, it is true, but the groups are *on the whole* and *in their typical forms* sufficiently different, to deserve their separate denominations and the rank in the system, which it has hitherto been customary to give them. — The more new forms (especially fossile ones) are discovered, the more the intervals between a number of genera and of higher groups, which had previously been considered as widely separated, are filled up. If we were fully acquainted with the entire animal and vegetable world, both the now living and the extinct, all such gaps would assuredly be filled up, and the truth of the old adage: *natura non facit saltus*, would stand out in all its grandeur.

2. Series oculorum antica paullo recurva, postica, desuper visa, subrecta. (Oculi intermedii plerumque fere in rectangulum dispositi). Femora sub-librata, genubus parum elevatis. . . . 2. *Sparassus.*

[3. Series oculorum antica sub-procurva vel recta, postica paullo recurva vel sub-recta. Oculi laterales antici mediis anticis non manifeste majores. . . . . 3. *Heteropoda.*]

b. Oculi medii antici evidenter longius a margine clypei quam a mediis posticis remoti. Maxillæ in labium inclinatæ. (Pili fasciculorum unguicularium breviores, compressi, in formam fere spathæ dilatatæ).

a. Pedum proportio 2, 1, 4, 3 (vel 2, 1, 3, 4). Cephalothorax breviter ovatus vel sub-orbiculatus.

1. Series oculorum antica modice, postica levius recurva, oculi laterales inter se paullo minus quam medii antici a mediis posticis distantes. Oculi laterales mediis paullo majores. Abdomen depressum, breviter et inverse ovatum vel sub-pentagonum. . . . . 4. *Artanes.*

2. Series oculorum ambæ modice et æqualiter recurvæ; laterales inter se spatio non minori distantes quam quo distant medii antici a mediis posticis. Abdomen plerumque ovatum vel inverse ovatum. . . . . 5. *Philodromus.*

β. Pedum proportio 2, 4, 1, 3 vel 2, 4, 3, 1: series oculorum ambæ fortiter recurvæ. Cephalothorax et abdomen oblonga. 6. *Thanatus.*

B. Series oculorum antica ex oculis 6, postica ex 2 tantum oculis constat. . . . . 7. *Selenops.*

** Pedes 4 posteriores reliquis graciliores et breviores multo. Tarsi fasciculis unguicularibus carent. . . . . II. THOMISINÆ.

A. Frons cum mandibulis declivis, sub-porrecta; oculi medii antici a margine clypei longius distantes quam a mediis posticis.

1. Series oculorum antica levius, postica fortius recurva; laterales antici evidenter majores quam medii antici. (Abdomen postice in tuberculum elevatum vel acuminato-productum). . . . . 8. *Monæses.*

2. Series oculorum antica fortius, postica levius recurva, laterales antici non majores quam medii antici. . . . . 9. *Thomisus.*

B. Frons et mandibulæ sub-verticales; oculi medii antici non longius a margine clypei quam a mediis posticis remoti.

a. Series oculorum antica plus minus recurva.

α. Oculi laterales postici vix vel non majores quam medii postici. (Oculi 4 medii plerumque in trapezium antice angustius dispositi). Aculei tibiarum graciles.

1. Series oculorum anticorum fortius, posticorum levius recurva; oculi laterales antici non vel parum majores quam intermedii antici. . . . . 10. *Misumena.*

2. Series oculorum anticorum levius, posticorum fortius recurva; laterales antici manifeste majores quam intermedii antici. 11. *Diœa.*

β. Oculi laterales postici evidenter majores quam medii postici; laterales antici multo majores quam intermedii antici; laterales inter se vix vel non longius remoti quam medii antici a mediis posticis. (Oculi 4 medii sæpius in rectangulum dispositi). Tibiæ et metatarsi anteriores subtus aculeis robustis armati. . . . . 12. *Xysticus.*

b. Series oculorum antica sub-recta; oculi laterales inter se manifeste longius distantes quam medii antici a mediis posticis; oculi 4 medii in rectangulum latiorem quam longiorem dispositi. Corpus valde depressum. . . . . 13. *Coriarachne.*

§§ Mamillæ et ungues desunt. . . . . III. Anetinæ.

1. Oculi laterales a mediis longe remoti. . . . . 14. *Anetes.*

Sub-fam. I. PHILODROMINÆ.

The powerful development of the posterior extremities gives the spiders of this sub-family that quickness and lightness of motion in which they so remarkably excell the *Thomisinæ.* — The claws are long and slender, generally straight or somewhat sinuated (i. e. slightly curved in the form of an ∽) the greater part of their length, with only the extremity bent down to a hook. The claw-tufts vary in length and density, but are always present. — We assign the genus *Selenops* to this sub-family; by Simon it is referred to the *Thomisinæ*, because the eyes in that genus are of *different* sizes, which he considers as one of the features by which the Thomisinæ are distinguished from the Philodrominæ. This is however no reliable characteristic, and indeed Simon himself, in his description of the genus *Thomisus*, says: "yeux égaux" [1]).

Gen. 1. MICROMMATA (Latr.) 1804.

Deriv.: *μικρόμματος*, small-eyed (*μικρός*, small; *ὄμμα*, eye).

Syn.: 1804. Micrommata [Micromata] Latr., *in* Nouv. Dict. d'Hist Nat., XXIV, p. 135 (*ad partem*).

1) The exotic genus *Delena* Walck. also we refer to the Philodrominæ, and not, as is done by Simon, to the Thomisinæ. Its hinder pairs of legs are indeed not inconsiderably shorter than the fore legs, but they are about equal to them *in strength;* and by the presence of strong claw-brushes, by the form of the claws themselves, and the powerfully developed scopulæ under the metatarsi and tarsi, as well as by its general appearance, *Delena* betrays a close affinity to *Heteropoda.*

1805. Sparassus WALCK., Tabl. d. Aran., p. 39 (*ad part.:* "1e Fam. Les Mycromates, *Mycromatæ*").
1806. Micrommata LATR., Gen. Crust. et Ins., I, p. 115.
1861. Sparassus WESTR., Aran. Suec., p. 405.
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 101.
1864. „ SIM., H. N. d. Araignées, p. 396 (*ad partem*).

Type: *Micrommata virescens* (CLERCK).

LATREILLE, in Nouv. Dict. d'Hist. Nat., l. c., states that his *Micrommata* comprises the spiders that WALCKENAER calls "les Grottiformes" (Faune Par., II, p. 225), i. e. *Aranea smaragdula*, *ornata*, *rosea* (and *A. accentuata*, which is placed there by mistake). In Gen. Crust. et Ins., *Micrommata smaragdula* (*Ar. virescens* CLERCK.) is expressly adduced as the type of the genus. — The more recent synonym *Sparassus* we reserve for those species of *Micrommata* LATR. or *Sparassus* WALCK. for which WALCKENAER formed the family "*les Opticiennes*", and which in the whole of their appearance approach far nearer to WALCKENAER'S *Olios* (*Heteropoda* (LATR.) NOB.) than to the 1st family of his *Sparassus*.

By some authors, e. g. WESTRING, *Micrommata* is referred to the *Drassoidæ*. It certainly differs considerably in general appearance from the more typical Thomisoidæ, the knees being so little depressed, that the animal can hardly be called laterigrade; but the intimate relationship of *Micrommata* with the evidently laterigrade species of the next genus, *Sparassus* (WALCK.) NOB., is too palpable to allow of its being separated from the family before us and transferred to the Drassoidæ, although it may be considered as forming the transition to these. — The form of the claws and claw-brushes is precisely that of the next following genus.

The spiders united by HENTZ [1]) under the name of *Micrommata*, cannot belong to this genus, for they all have the posterior row of eyes strongly curved backwards, and the anterior row straight or curved forwards. They seem to approach much nearer to *Dolomedes* or to *Dendrolycosa* DOLESCH., than to *Micrommata*, as far at least as we can judge from the position of the eyes as described and figured by HENTZ.

Gen. 2. SPARASSUS (WALCK.) 1805.

Deriv.: σπαράσσω, tear sunder.

Syn.: 1805. Sparassus WALCK., Tabl. d. Aran., p. 39 ("2e Fam. Les Opticiennes, *Optices*", *saltem ad part.*).

1) Aran. of the United States, *in* Bost. Journ. of Nat. Hist., V, p. 192.

1818. Micrommata Latr., *in* Nouv. Dict. d'Hist. Nat., 2e Éd., XX (*ad part.; sec.* Walck.).

†1838. Ocypete C. Koch, Die Arachn., IV, (*ad part.:*) p. 83.

1864. Sparassus [Sparassa] Sim., H. N. d. Araignées, p. 396 (*ad partem*).

Type: *Sparassus Argelasii* Walck.

The species we have proposed as type for this new genus has, it appears to us, been referred by C. Koch to his *Ocypete* (*Olios* Walck., *Heteropoda* (Latr.) nob.), and described under the appellation of *O. tersa* (loc. cit.), although it has by all other writers, who have treated on it, been considered as a *Micrommata* or *Sparassus*. From *Micrommata*, as that genus has been limited by us, it differs in the strongly marked laterigrade position of the legs, in its more dense scopulæ, in the closer vicinity to each other of the two rows of eyes, etc. The eyes are moreover larger, and the anterior central eyes at least as large as the anterior lateral ones. From the next following genus, *Heteropoda*, it differs in that the anterior row of eyes is curved backward instead of being straight or curved somewhat forward. For this genus we have assumed the name *Sparassus*, which has previously been synonymous with *Micrommata*, and under which the typical species was first described.

In *Sparassus Argelasii* the tarsal claws are very long and slender (somewhat longer still than in *Micrommata*), straight, only a little sinuated towards the middle, and with the extremity turned down into a hook. The teeth are short, blunt and pretty close together, gradually longer towards the extremity of the claw, their points forming an almost straight line; they are about 16 in number on the inner, and a couple less on the outer claw. The female's palpal claw has about 8 tolerably strong, close-set comb-teeth, gradually increasing in length. The hairs in the thick claw-brushes are long and fine, with the extremity compressed, somewhat dilated, and bifid.

[Gen. 3. HETEROPODA (Latr.) 1804.

Deriv.: *ἑτερόπους*, with dissimilar feet (*ἕτερος*, other; *πούς*, foot).

Syn.: 1804. Heteropoda Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 135 (*ad partem*).

1805. Thomisus Walck., Tabl. d. Aran., p. 28 (*ad part.:* "8e Fam. Les Robustes, *Robustæ*").

1830. Sparassus id., Faune Franç., Arachn., p. 102 (*ad partem*).

1833. Sarotes Sund., Consp. Arachn., p. 28 (*ad partem*).

†1837. Ocypete C. Koch, Uebers. d. Arachn.-Syst., 1, p. 27 (*ad max part.*).

1837. Olios WALCK., H. N. d. Ins. Apt., I, p. 563 (*ad part.: saltem* "1e Fam. Les Robustes, *Robustæ*").

1864. „ SIM., H. N. d. Araignées, p. 409 (*ad partem*).

Type: *Heteropoda venatoria* (LINN.).

The only species provided with specific name, that LATREILLE takes up loc. cit. as an example under his genus *Heteropoda*, is *Aranea venatoria* LINN. (*Olios leucosios* WALCK.) [1]), which must accordingly be considered as the type of the genus. According to the *characteristics* given by LATREILLE to *Heteropoda*, it answers to the whole sub-family of Philodrominæ, quite as *Misumena* LATR. answers to the sub-family Thomisinæ. — That a whole *Class* (of *Mollusca*) several years afterwards (1812) should have received the name of *Heteropods (Heteropoda)*, is certainly unfortunate, but this circumstance, it seems to us, cannot hinder the use of the *singular* form *Heteropoda* as a generic name, any more than the circumstance, that this name would have been much more suitable to a Thomisine than to a Philodromine genus, since at any rate it is not *false* as applied to this last. (Conf. p. 10, note 3).

The tarsal claws of *H. venatoria* are very long and slender, only at the end bent downwards, with (on the 2nd pair) about 12 comb-teeth on the inner claw; those nearest the base (the interior) are very close to each other, parallel, the exterior coarse and divergent; all are rather short, gradually increasing a little in length towards the extremity of the claw; on the outer claw they are less numerous and more sparse. The claw-brushes are long and thick, every separate hair very fine and somewhat incrassated just at the apex: seen in profile it there appears to be serrated on the underside.

The genus *Olios* WALCK. seems to us to contain forms too heterogeneous to allow of its remaining long undivided. Its "1re Famille", and perhaps a couple more, belong to *Heteropoda*, as we have in p. 174 determined the limits of that genus. The same generic group, which WALCKENAER calls *Olios*, had been previously characterized by SUNDEVALL under the name of *Sarotes*. That name, the oldest synonym of *Heteropoda*, ought to be made use of, if ever the genus comes to be divided into smaller generic groups. The Walckenaerian name is so incorrectly formed — it is said to be derived from *ὀλοός*, *ὀλοιός*, *destructive*, and accordingly should be writ-

1) *Ar. venatoria* FABR., Ent. Syst., II, p. 407 = *Ar. nidulans* ID., Mant. Insect., p. 343 (1787), is a Theraphosoid *(Nemesia)*, and therefore altogether different from *Ar. venatoria* LINN.

ten *Olous* or *Olœus* — that on that account alone it ought to be discarded. *Ocypete*, as the genus *Heteropoda* has been denominated by C. Koch, is a name already in 1815 assigned by Leach to a genus of *Acari*.

It is with doubt that I include this genus among those of Europe. Of the four species of *Olios* or *Ocypete* stated to belong to the European Fauna, one, the *Ocypete tersa* C. Koch [1]), is undoubtedly identical with *Sparassus Argelasii*, of which species I have found a specimen at Nizza, and have received another from Spain from Mr. Simon. The second, *Ocypete vulpina* (Hahn) C. Koch, described by Hahn as an *Epeira*, has according to Koch [2]) its front row of eyes evidently curved backwards, and is therefore surely a *Sparassus* (Walck.) nob. The third species, which, as well as the preceding, is unknown to me, *Olios spongitarsis* (Duf.) Walck. [3]), is referred by Dufour [4]) to *Micronmata* (*Sparassus* Walck.), and probably also belongs to *Sparassus* nob. A fourth species, from Naples, described by Canestrini and Pavesi [5]), is called *Ocypete nigritarsis:* it is perhaps also a *Sparassus*.]

Gen. 4. SELENOPS Duf. 1820.

Deriv.: σελήνη, moon; ὤψ, eye.

Syn.: 1820. Selenops Duf., Descr. de six Arachn. nouv., p. 361.
1839. Hypoplatea (sub-gen. of Selenops) Mac Leay, On some new forms of Arachn., p. 6.
1864. Selenops Sim., H. N. d. Araignées, p. 420.

Type: *Selenops homalosoma* Duf.

The typical European species is to me unknown. — In a species from Asia Minor (Caramania), belonging to the "3me Fam. Les *Aphartères*" of the genus in Walckenaer (Ins. Apt., I, p. 548), and which I have received from Count Keyserling, the claws differ in appearance from those of all other Thomisoidæ known to me. They are indeed very long and slender, like those of the Philodrominæ in general, but they are pretty *uniformly curved*, not straight the greatest part of their length, and entirely *destitute of teeth*. Under the claws are two strong, very thick claw-brushes, the hairs of which are long and fine, slightly dilated at the end, as in

1) Die Arachn., IV, fig. 305; *ibid.*, XII, p. 39, figg. 980, 981.
2) Ibid., XII, p. 30, fig. 974.
3) Hist. Nat. d. Ins. Apt., 1, p. 574.
4) Descr. de six Arachn. nouv., p. 12 (366); Sur la Micr. spongitarsis, p. liv.
5) Aran. ital., p. 133.

Heteropoda, *Micrommata*, etc. The thick *scopula* under the tarsus and metatarsus of these genera is *absent* in *Selenops*, which genus thus is distinguished not by its peculiar position of the eyes alone.

It is possible that this genus may have been created already by LATREILLE, in the 2nd Edit. of Nouv. Dict. d'Hist. Nat., which I have not had the opportunity of consulting (Conf. DUFOUR, loc. cit.). In his later works however LATREILLE calls it: "*Selenops* DUFOUR."

Gen. 5. ARTANES n.

Deriv.: *Ἀρτάνης*, proper name.

Syn.: †1837. Artamus C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 27.
1861. Philodromus WESTR., Aran. Suec., p. 445 (*ad partem*).
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 91 (*ad partem*).
1864. Artamus [Artama] SIM., H. N. d. Araignées, p. 415.

Type: *Artanes margaritatus* (CLERCK).

Artamus being the well known and accredited name of a genus of birds, so named by VIEILLOT as early as 1816, I have been obliged to give the spider-genus *Artamus* a new appellation.

In this and the two following genera, the hairs of the claw-tufts have an appearance quite different from that presented in any of the genera of the family, we have as yet described: these hairs are in fact beyond all comparison shorter and broader, flattened, spade-like or feather-like, and far less numerous (especially in *Thanatus*). The claws are often shorter, especially in *Thanatus*, but of the same form; the teeth usually far more numerous on the inner than on the outer claw, in *Philodr. aureolus*, for inst., about 5 on the outer and about 14 on the inner claw; in *Thanatus oblongus* about 3 on the outer and about 10 on the inner; but in *Th. formicinus* about 5 on the outer and 8 on the inner. The number of teeth on the claws is here, as usual, frequently very different not only on the different pairs of legs of the same individual, but on the same pair in different individuals of the same species, and accordingly the number observed by me in the various specimens that I have examined, frequently differs considerably from that given by OHLERT.

Gen. 6. PHILODROMUS (WALCK.) 1820—26.

Deriv.: *φιλέω*, love, like; *δρόμος*, course, run.

Syn.: 1825 (?) Philodromus WALCK., Fauna Franç., Arachn., p. 86 (*ad partem*).
1837. „ C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 28.

1861. Philodromus Westr., Aran. Suec., p. 445 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 91 (*ad partem*).
1864. „ [Philodroma] Sim., H. N. d. Araignées, p. 406.

Type: *Philodromus aureolus* (Clerck).

Walckenaer refers *Thaumasia senilis* Perty [1]) to the genus *Philodromus*, without doubt erroneously: it is not certain that *Thaumasia* is even a *Thomisoid:* Perty himself refers it, though doubtfully, to the *Tubitelariæ.*

Gen. 7. THANATUS C. Koch. 1837.

Deriv.: θανατός, death.

Syn.: 1837. Thanatus C. Koch, Uebers. d. Arachn.-Syst., 1, p. 28.
1861. Philodromus Westr., Aran. Suec., p. 445 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 91 (*ad partem*).
1864. Thanatus [Thanata] Sim., H. N. d. Araignées, p. 401.

Type: *Thanatus formicinus* (Clerck).

Sub-fam. II. THOMISINÆ.

This sub-family includes the forms which are strictly speaking typical of the whole family — the κατ' ἐξοχήν "crab-spiders". Their two pairs of back legs are always weaker and much shorter than the fore legs; single feather- or spade-like hairs are sometimes found under the claws, but they do not form claw-tufts or claw-brushes as in the Philodrominæ. The tarsal claws are (at least in the females) broad at the base, short and strong, and curved almost from the base, with rather long, closely set comb-teeth. In *Xysticus* and *Coriarachne* they are particularly coarse and blunt, in *Misumena* and other genera slenderer and more pointed.

From the genus *Thomisus* Walck., in the compass given to it in the "Faune Française", and which is still received by for example Westring and Blackwall, i. e. as identical with *Misumena* Latr., C. Koch already in 1835 detached his genus *Xysticus*, which is very natural, and has been adopted by many arachnologists. The remaining species of *Thomisus* Walck., for which C. Koch preserved that latter generic name, are on the contrary too heterogeneous to be allowed to remain united under a common name. One is obliged either to preserve *Misumena* Latr. (*Thomisus* Walck.) un-

1) Delect. Anim. Art. Bras., p. 192, Tab. XXXVIII, fig. 5.

divided, or else to break up *Thomisus* C. KOCH into some few minor genera. I, for my part, have preferred the latter alternative. SIMON [1]) has already divided *Thomisus* C. KOCH, SIM., into 4 "sub-genera", *Phlœoides*, *Thomisus*, *Pachyptila* and *Synœma*, and the sub-genus *Thomisus* again into three "groups", *Thomisus*, *Cirrofera* (= *Platythomisus* DOLESCHALL [2]) saltem ad partem) and *Diana*, and has furthermore proposed the new genera *Oxyptila* and *Phrynoides* (*Phrynarachne* NOB.: vid. sup. p. 37). The last-named (exotic) genus appears to me to merit preservation, but the other, European, groups, to which he has assigned generic names, I cannot, in the very vague limits of SIMON's definitions, accept as genera.

Gen. 8. MONÆSES N.

Deriv.: *Μοναίσης*, proper name.

Syn.: † 1845—47. Monastes LUC., Explor. de l'Algérie, Arachn., p. 192.
1847. „ WALCK., H. N. d. Ins. Apt., IV, p. 432.
1838. Xysticus C. KOCH, Die Arachn., IV, (*ad part.:*) p. 79.
1864. Monastes SIM., H. N. d. Araignées, p. 418.
1864. Xysticus ID., ibid., p. 524 (*ad partem*).
1868. Thomisus ID., Sur quelques Araignées d'Espagne, p. 284 (*ad partem*).

Type: *Monœses paradoxus* (LUC.).

The genus *Monastes* — or *Monœses*, as I have called it, the name *Monastes* being already appropriated (vid. p. 37) — was formed by LUCAS for two remarkable Thomisinæ from Algeria, and has lately been increased by SIMON with a third and European species, *Thomisus Piochardi* SIM. from Spain. As a fourth species I refer to this genus *Xysticus cuneolus* C. KOCH, which also belongs to the Fauna of Europe. SIMON in the latter of his works above cited has suppressed this genus and united it with Thomisus, which appears to us by no means a happy step. On this subject se farther p. 172.

The genus *Sylvia* NIC. [3]) seems to me, judging from the figures, to be nearly related to, perhaps identical with *Monœses*, although the species of that genus are said not to be laterigrade, and to have vertical mandibles. — *Sylvia* is the old Linnæan name of a genus of birds.

In *M. cuneolus* the tarsal claws present very nearly the same construction as in *Misumena* and *Diœa:* the inner claw has about 12 long,

1) Hist. Nat. d. Araignées, p. 432.
2) Tweede Bijdr. t. de Kenn. d. Arachn. v. d. Ind. Arch., p. 59.
3) GRAY, Hist. fis. e pol. de Chile, Zool., III, p. 465.

parallel comb-teeth, of which those nearest the base are considerably finer and very close-set; the outer has about 8 somewhat equal, coarse teeth. The palpal claw is small, with about 4 pretty long comb-teeth.

Gen. 9. THOMISUS (Walck.) 1805.

Deriv.: perhaps *θωμίσσω*, bind, whip.

Syn.: 1805. Thomisus Walck., Tabl. d. Aran., p. 28 (*ad partem*).
1825(?). „ id., Faune Franç., Arachn., (*ad part.:*) p. 70.
1837. „ C. Koch, Uebers. d. Arachn.-Syst., 1, p. 24 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 66 (*ad partem*).
1864. „ [Thomisa]: sub-gen. Phlœoides Sim., H. N. d. Araignées, p. 431 (*ad partem*).

Type: *Thomisus abbreviatus* (Walck.).

We preserve Walckenaer's generic name *Thomisus* for the large and remarkable species, which Walckenaer called *Th. abbreviatus* and Hahn *Th. diadema*, and which also in the works of C. Koch retains the generic name *Thomisus*. — By its high and sloping clypeus and its somewhat protruded mandibles, this spider, like the species of *Monæses*, in some degree resembles the Philodrominæ, but the entire general appearance of the animal, as well as the presence of the characters that distinguish the sub-family Thomisinæ, gives it an undoubted place in the last named group.

The tarsal claws of *Th. abbreviatus* ♀ are small, but coarse, not so blunt however as those of *Xysticus*, with about 8 tolerably long, somewhat curved comb-teeth on the inner and 4 on the outer claw. The female's palpal claw is almost straight throughout half its length, then sharply curved, with a long point and about 5 long comb-teeth, of which that nearest the base is considerably smaller than the rest.

Gen. 10. MISUMENA (Latr.). 1804.

Deriv.: *μισούμενος*, hated (*μισέω*, hate).

Syn.: 1804. Misumena Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 135 (*ad partem*).
1805. Thomisus Walck., Tabl. d. Aran., p. 28 (*ad partem*).
1837. „ C. Koch, Uebers. d. Arachn.-Syst., p. 24 (*ad partem*).
1861. „ Westr., Aran. Suec., p. 410 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 66 (*ad partem*).
1864. „ [Thomisa]: sub-gen. Phlœoides, Thomisus et Pachyptila Sim., H. N. d. Araignées, p. 431 (*ad partem*).

Type: *Misumena vatia* (Clerck).

Misumena LATR. 1804 is, as we already know, synonymous with *Thomisus* WALCK. 1805 *ad part.*, and accordingly has the right of priority in preference to that later name. As LATREILLE loc. cit. names *Aranea citrea* DE GEER (*Aran. vatius* CLERCK) as the type of *Misumena*, this *oldest* generic name must be reserved for that one of the smaller genera, into which *Misumena* or *Thomisus* has by later authors been resolved, that includes *Ar. vatius* CLERCK. To *Misumena*, besides *Ar. vatius*, I reckon among others *Ar. truncata* PALL. (*horrida* FABR.), *Thom. lateralis* C. KOCH, as also *Thom. villosus* LATR., for which SIMON has formed the sub-genus *Pachyptila*. In order that the generally known name *Thomisus* may not be altogether lost, I have preserved it for a genus formed by myself, of which the type is *Thomisus abbreviatus* WALCK. See preceding genus.

Gen. 11. DIÆA n.

Deriv.: *Διαίος*, proper name.

Syn.: 1805. Thomisus WALCK., Tabl. d. Aran., p. 28 (*ad partem*).
1837. „ C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 24 (*ad partem*).
1861. „ WESTR., Aran. Suec., p. 410 (*ad partem*).
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 66 (*ad partem*).
1864. „ [Thomisa]: sub-gen. id.: "*groupe*" Diana, et sub-gen. Synæma [Synema] SIM., H. N. d. Araignées, p. 431 (*saltem ad partem*).

Type: *Diœa dorsata* (FABR.).

The spiders belonging to this genus, which are usually referred to the same genus (*Thomisus* C. KOCH) as *Misumena vatia* (CLERCK), differ from that and from other species of *Misumena* by having the anterior row of eyes less curved than the posterior, as also the anterior lateral eyes evidently larger than the anterior central ones. In that respect they more nearly approach *Xysticus* than *Misumena*, which latter genus however they most closely resemble in their weak extremities, armed with fine spines, and their usually lively colours. This genus appears very nearly to coincide with the "group" *Diana* of SIMON'S *Thomisus;* but the name given by SIMON being previously engaged (vid. p. 36), I have replaced it with *Diœa*. — *Ar. globosa* FABR., which appears to be the type of the sub-genus *Synœma* SIM., may, although in its appearance tolerably different from *Diœa dorsata*, *D. tricuspidata* (*Thom. Diana* WALCK.) etc., perhaps for the present be united with *Diœa*.

Gen. 12. XYSTICUS (C. Koch). 1835.

Deriv.: probably ξυστικός, scraping (ξύω, scrape, polish).

Syn.: 1835. Xysticus C. Koch, *in* Herr.-Schæff., Deutschl. Ins., 129, 16, 17.
1837. „ id., Uebers. d. Arachn.-Syst., 1, p. 25 (*ad partem*).
1861. Thomisus Westr., Aran. Succ., p. 410 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 66 (*ad partem*).
1864. Xysticus [Xystica] Sim., H. N. d. Araignées, p. 427 (*ad max. part.*).
1864. Oxyptila [Ozyptila] id., ibid., p. 440.
1867. Xysticus Ohl., Aran. d. Prov. Preuss., p. 108.

Type: *Xysticus Kochii* n. = *X. viaticus* C. Koch [1]).

The genus *Oxyptila* Sim., formed for *Thomisus claveatus* Walck., appears to me to differ from *Xysticus* only by the bristles on the body being inerassated at the extremity; this is also the case in *Thom. scabriculus* Westr., which species I cannot generically distinguish from e. g. *Xyst. brevipes*, in which the bristles display, though in a less degree than in *Th. claveatus* and *scabriculus*, a tendency to become thicker towards the end. The name *Oxyptila* can moreover hardly be retained, on account of its signification (from ὀξύς, sharp and πτίλον, bristle), which is absolutely the reverse of the characteristic feature (the club-like thickening of the bristles towards the apex) which seems to constitute the principal claim of this group to be considered as a separate genus.

In the genus *Xysticus* the tarsal claws are very different in the two sexes. In *X. cristatus* for ex. they are in the female short and strong, pretty regularly curved, with 4 or 5 strong comb-teeth and frequently also a finer tooth near the base. In the *male* the claws are weaker, rather long and slender: they are but slightly curved for the greatest part of their length, almost straight, with the point turned downwards; the outer claw has about 5 sparse and coarse teeth; on the inner claw the teeth are more numerous, for where in the outer claw the inmost tooth is posited, we find in the inner a group of about 5 closely set, fine teeth.

1) *Aranea viatica* Linn. or *A. cristatus* Clerck, which C. Koch considers to be the same as his *Xysticus viaticus*, is an entirely different species, and = *X. audax* C. Koch. — In both species the genital bulb is on the underside, nearer the base, provided with two processes: in *X. cristatus* that nearest the base is *broad*, *compressed*, claw-like, the other is slender and has almost the form of a ⌊ or an *anchor;* in *X. Kochii*, *both* processes are slender and of about the same substance: that nearest the base is bent almost in the form of a *boot*, the other process has its short, *blunt* extremity curved against the foot of the boot. — *X. Kochii* has not as yet been found in Sweden.

Gen. 13. CORIARACHNE n.

Deriv.: *κόρις*, bug; *ἀράχνη*, spider.

Syn.: 1837. Thomisus C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 25 (*ad partem*).
1838. Xysticus ID., Die Arachn., IV (*ad part.:*) p. 67.
1850. Thomisus ID., Uebers. d. Arachn.-Syst., 5, p. 37 (*ad partem*).
1861. „ WESTR., Aran. Suec., p. 410 (*ad partem*).
1864. Xysticus SIM., H. N. d. Aran., p. 427 (*ad partem*).

Type: *Coriarachne depressa* (C. KOCH).

That the spider C. KOCH has in the above cited passage of "Die Arachniden" described under the name of *Xysticus depressus*, cannot permanently be considered as belonging to the genus *Xysticus*, he has himself seen, and has accordingly in Uebers. d. Arachn.-Syst., 5, loc. cit. moved it to his *Thomisus*. But that he is still dissatisfied with the position he has thus assigned to this remarkable species, appears from his appending the remark: *"Allen Formen nach eine eigene Gattung."* In fact this spider, which in the particularly depressed form of its body resembles certain species of *Delena* and *Heteropoda*, must be considered as the type of a special genus, the nearest neighbour to *Xysticus*, but distinguished from that genus, not only by its flattened body, but by having the anterior row of eyes straight, while the posterior row is sensibly curved backward. — The claws have much the same appearance as those of *Xysticus*.

Sub-fam. III. ANETINÆ.

* Gen 14. ANETES MENGE. 1850.

Deriv.: *α priv.*; *νέω*, spin.

Syn.: 1850. Anetes MENGE, Verzeichn. Danz. Spinn., p. 71.

Type: *Anetes cœletrum* MENGE.

All that is known about this remarkable genus is contained in the following lines. "Lastly I mention here a spider, which I look upon as new both as to genus and species, and which I shall call Anetes cœletron. Eyes posited as in Epeira. Abdomen oblong heart-formed, flat, terminating in a hard point posteriorly; on the underside of the belly a triangular, bordered *(umsäumte)* depression, in which I have not been able to discover any spinners. Tarsi destitute of claws. Length about 2 lines. Cephalo-

thorax brownish, abdomen white, densely sprinkled with dark-brown points. Legs yellowish-white, mottled with brown. Lives in decaying matter. Unfortunately I possess no more than one female specimen. Appears to be nearly related to *Arkys lancearius* Walck. Apt., I, 497, pl. 13, Fig. 3." (Menge, loc. cit.).

Sub-ordo VI. CITIGRADÆ.

Syn.: 1817. "Citigrades" Latr., *in* Cuv., Règne Anim., III, p. 95.
1823. Cursores Sund., Gen. Aran. Suec., p. 20.
1825. Citigradæ Latr., Fam. Nat. du Règne Anim., p. 316.
1833. Lycosides Sund., Consp. Arachn., p. 23
1852. Venatores Dolesch., Syst. Verzeichn. etc., p. 8.

This perfectly natural and universally acknowledged group, almost identical with Walckenaer's "*Coureuses*" and Simon's "*Lycosiformes*", and characterised by its high, almost prismatic cephalothorax, with narrow back, its eyes, which are arranged in 3 or 4 transversal rows (rarely in 2, and, when so, the posterior row strongly curved backwards), its 3 tarsal claws, its wandering habits, etc., has but few points of connexion with other sub-orders. The *Lycosoidæ* however show (through *Dolomedes*) a relationship with the *Agalenoidæ (Textrix)* and *Drassoidæ (Zora)*, but may, as far at least as regards the European forms, be easily distinguished from them by differences in the form of the cephalothorax, as also by the the position of the spinning tubes on the spinners, or by the number of the claws. They also show a certain affinity to the *Hersilioidæ*, but these are without difficulty distinguished by their long superior spinners, garnished with spinning tubes all along the under side, by the form of the parts of the mouth, etc. (Conf. p. 114). The genus *Catadysas* Hentz (vid. p. 43, 161) is a connecting link between the *Lycosoidæ* and the *Theraphosoidæ* [1]). The *Oxyopoidæ* show evident analogies with the *Attoidæ;* both the *Oxyopoidæ* and *Ocyale* resemble in their general appearance certain *Philodrominæ (Thanatus);* but the form of the cephalothorax and the number of the claws is different, and the dif-

1) Like several of these latter, many Lycosoidæ dig with their mandibles deep holes or galleries in the ground: Hentz (Aran. of the United States, *in* Bost Journ. of Nat. Hist., IV, p. 229) even states that he once found such a hole, in the winter, which was supplied with a *lid.* Also of the European *Tarentula Apuliæ* it has been said that it closes the orifice of its gallery for hibernation; but this is an error: Conf. Bergsoe, Iagttagelser om den Italienske Tarantel etc., p. 255.

ference in the *form* of the claws between any of these Citigradæ on the one side and the *Philodrominæ* and *Attoidæ* on the other is still greater.

SIMON divides his "*Lycosiformes*" into 3 tribus, *Herséliens*, *Lycosiens*, and *Dolomédiens*. The first of these answers to our *Hersilioidæ*, which appear to us to belong to the sub-order *Tubitelariæ*, and not to the Citigradæ. The other two, which are distinguished, the "*Lycosiens*" by having "yeux inégaux, corps court et ramassé, membres robustes et courts", whereas the "*Dolomédiens*" have "yeux peu inégaux, corps étroit et allongé, membres fins, longs et allongés", I cannot consider even as sub-families, for these characteristics do not appear to me to hold good: *Dolomedes* for example cannot surely be said to have a slenderer body and finer extremities than e. g. *Lycosa*. *Oxyopes* LATR. on the other hand is already by the position of the eyes so distinctly separated from other *Citigradæ*, that that genus may reasonably be considered as the type of a separate family.

We accordingly divide the European *Citigradæ* into two families, *Lycosoidæ* and *Oxyopoidæ*, in the following manner:

1. Oculi in series transversas tres vel duas dispositi: oculi 4 posteriores in trapezium postice latius, vel in lineam fortiter recurvam dispositi. I. *Lycosoidæ*.
2. Oculi in series transversas quattuor vel tres dispositi; oculi 4 posteriores in trapezium postice angustius vel in seriem procurvam dispositi. II. *Oxyopoidæ*.

Fam. I. LYCOSOIDÆ.

Syn.: 1833. Lycosides SUND., Consp. Arachn., p. 23 (*ad max. part.*).

In this family we include all genera belonging to the *Citigradæ*, with the exception of *Oxyopes* LATR. or *Sphasus* WALCK. and *Pasithea* BLACKW. or *Peucetia* NOB. — The claws in this family are very nearly similar to those of the *Agalenoidæ:* the superior tarsal claws are strong, broad at the base, pectinated; the inferior claw is bent suddenly downwards, but, unlike what is usually the case with the Agalenoidæ, is generally toothless; occasionally it is furnished with one or two pointed teeth. The palpal claw of the female is also pectinated, but has usually only a few teeth. In ♂ of many species, especially within the genera *Lycosa* and *Trochosa*, the palpus is, as OHLERT has shown [1]), provided at the extremity with an appendage more or less resembling a claw, which however can only be considered as a coarse spine, in as much as that it is not, like a real claw, broader at

1) Klauenbild. d. Preuss. Spinn., p. 12.

the base, moveable and articulated to the tarsus; sometimes two or even three such spines are found situated close to each other at the extremity of the palpus. In *Dolomedes* (at least *D. fimbriatus*), the palpus of the male (as has been discovered by Ohlert, loc. cit.) is provided with *a genuine pectinated claw* at its extremity, which is not the case in any other genus that I know of among the Citigradæ (not even in *Ocyale*), and has only been observed in one spider beside *Dolomedes*, namely in *Hersiliola oraniensis* (Conf. p. 116).

The European genera accepted by us as belonging to this family are as follows:

§ Series oculorum antica ex oculis 4 formata.

* Oculi medii seriei anticæ a margine clypei spatio remoti quod diametrum oculorum non vel paullo tantum superat.

A. Mamillæ superiores reliquis saltem dimidio longiores. Facies alta, subquadrata, fronte prominenti; series oculorum antica procurva. 1. *Aulonia.*

B. Mamillæ superiores reliquis vix vel non longiores.

a. Series oculorum antica paullo brevior quam media. Area oculorum æque saltem longa atque lata. Facies alta.

1. Facies sub-quadrata, versus mandibulas non vel parum latior, lateribus rectis. Pedes extus tenues. . . . . 2. *Lycosa.*

2. Facies versus mandibulas multo latior, lateribus fortiter convexis. Pedes plerumque robusti et extus parum attenuati. . 3. *Tarentula.*

b. Series oculorum antica plerumque paullo longior, saltem non brevior quam media. Area oculorum plerumque latior quam longior. Facies humilis, lateribus convexis; oculi medii seriei anticæ vix longius quam diametro suo a margine clypei remoti.

1. Oculi medii seriei anticæ majores, vix vel non minores quam oculi seriei posticæ: series oculorum anticorum evidenter longior quam series media. Cephalothorax plerumque densius appresso-pubescens. . . . . 4. *Trochosa.*

2. Oculi medii serici anticæ parvi, evidenter minores quam oculi seriei posticæ: cephalothorax parce pubescens. . . . . 5. *Pirata.*

** Oculi medii seriei anticæ a margine clypei spatio remoti, quod diametro oculorum maximorum duplo saltem majus est.

1. Oculi 4 seriei anticæ sub-æquales. Pedes robustiores. . . 6. *Dolomedes.*

2. Oculi 2 laterales seriei anticæ evidenter majores quam medii ejusdem seriei. Pedes graciles. . . . . 7. *Ocyale.*

[§§ Series oculorum antica ex duobus tantum oculis constans. Oculi laterales seriei mediæ ab oculis duobus seriei posticæ longe disjuncti. . . . . 8. *Ctenus.*]

Gen. 1. AULONIA C. KOCH. 1848.

Deriv.: *ἀυλών*, defile, valley.

Syn.: 1805. Lycosa WALCK., Tabl. d. Aran., p. 10 (*ad part.:* "3e Fam. Les Porte-Queues, *Caudatæ*").
1848. „ sub-gen. Aulonia C. KOCH, Die Arachn., XIV, p. 97.
1864. Lycosina SIM., H. N. d. Araignées, p. 369.

Type: *Aulonia albimana* (WALCK.).

In this genus, which is especially distinguished by its long superior spinners, the claws are of the form usual within the family. The typical species, of which I found several examples at Kissingen, has about 7 or 8 gradually increasing comb-teeth on the superior tarsal claws, and *two* fine, rather long teeth on the inferior claw. The palpal claw has 3 or 4 teeth gradually increasing in length.

Gen. 2. LYCOSA (LATR.). 1804.

Deriv.: *λυκόω*, tear like a wolf (*λύκος*, wolf).

Syn.: 1804. Lycosa LATR., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 135 (*ad partem*).
1805. „ WALCK., Tabl. d. Aran., p. 10 ("1e Fam. Les Terricoles, *Terricolæ*" *ad part.*).
1833. „ : sub-gen. Lycosa SUND., Consp. Arachn., p. 24.
1848. „ : sub-gen. Pardosa C. KOCH, Die Arachn., XIV, p. 96.
1848. „ : sub-gen. †Limonia [Leimonia] ID., ibid., p. 99.
1861. „ WESTR., Aran. Succ., p. 467 (*ad partem*).
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 16 (*ad partem*).
1864. „ : sub-gen. Limonia [Leimonia] et Lycosa SIM., H. N. d. Araignées, p. 349, 351, 352.
1867. Pardosa OHL., Aran. d. Prov. Preuss., p. 127, 136.
1867. Limonia [Leimonia] ID., ibid., p. 127, 133.

Type: *Lycosa lugubris* WALCK.

When in 1848 C. KOCH divided the genus *Lycosa* of LATREILLE into several sub-genera (as SUNDEVALL had already done in 1833), he gave new names to them all, without preserving to any the old name *Lycosa*. His sub-genus *Pardosa* appears to us to embrace the forms, in which the type of the Lycosoidæ is best and most fully developed, and SIMON has therefore done rightly in preserving to that sub-genus the old generic name *Lycosa*. As type of the genus we select the well-known *L. lugubris* WALCK. (= *L. silvicola* SUND., *L. alacris* C. KOCH).

As regards *Limonia [Leimonia]* C. Koch, the peculiarities in the form of the head and position of the eyes of this sub-genus do not appear to us of sufficient importance to require a generic separation from *Pardosa* or *Lycosa*, and we therefore give to the last named genus the compass assigned by Sundevall in the Consp. Arachn. to his sub-genus *Lycosa*. The difference in the habits of *Pardosa* and *Limonia*, mentioned by C. Koch, is not universal, for e. g. *L. lignaria* (Clerck), which is evidenly a *Limonia*, lives in dry, sunny places (especially in pine-woods), not in wet localities. In the structure of the claws there is no difference: also the form of the cocoon is the same in *Pardosa* and *Limonia*. — The name *Leimonia* had already in 1816 been given by Hübner to a genus of Lepidoptera.

Blackwall and Westring preserve Walckenaer's *Lycosa* undivided, and it must be admitted, that the characteristic distinctions, on the strength of which it has by some modern arachnologists been divided into several genera, are by no means so sharp as could be desired. They show themselves more in the animals' habits, in the form given to their cocoons, and in the disposition of the colours, than in distinctly marked differences in the form of the various parts of the body.

The superior tarsal claws in *Lycosa* have ordinarily from 5 to 7 coarse, thinly set, somewhat divergent teeth; the inferior claw is usually unarmed, but, according to Ohlert, is now and then provided with a very small tooth. In the species examined by me the palpal claw is furnished with two or three coarse teeth.

Gen. 3. TARENTULA (Sund.). 1833.

Deriv.: *Tarentum*, proper name of the city now called *Taranto*.

Syn.: 1805. Lycosa Walck., Tabl. d. Aran., p. 10 ("1e Fam. Les Tericoles, *Terricolæ*" *ad partem*).
1833. „ : sub-gen. Tarentula Sund., Consp. Arachn., p. 24 (*ad partem*).
1848. „ : sub-gen. Tarantula C. Koch, Die Arachn., XIV, p. 96.
1861. „ Westr., Aran. Suec., p. 467 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 16 (*ad partem*).
1864. „ : sub-gen. Tarantula Sim., H. N. d. Araignées, p. 349, 350.
1867. Tarantula Ohl., Aran. d. Prov. Preuss., p. 127, 138.

Type: *Tarentula Apuliæ* (Walck.).

The tarsal claws are similar in form and armature to those of *Lycosa;* the superior have most generally from 5 to 7 teeth (usually 6—8 on the 4th pair), the inferior is destitute of teeth. The palpal claw has about

4 teeth. In the large burrowing species, e. g. *T. melanogaster* (LATR.) or *Narbonensis* (WALCK.), the free point of the claw is longer and bent more deeply downward than in the smaller species found in north and central Europe. In *T. melanogaster*, the palpal claw has 4, the superior tarsal claws 5 or 6 teeth in the first half of their length. Also in *T. Apuliæ* these latter claws are armed with 5 strong comb-teeth, according to BERGSOE [1]).

Gen. 4. TROCHOSA (C. KOCH). 1848.

Deriv.: τροχάω = τρέχω, run.

Syn.: 1805. Lycosa WALCK., Tabl. d Aran., p. 10 ("1e Fam. Les Tericoles, *Terricolæ*" *ad partem*).
1833. „ : sub-gen. Tarentula SUND., Consp. Arachn., p. 24 (*ad partem*).
1848. Trochosa C. KOCH, Die Arachn., XIV, p. 95.
1848. Arctosa ID., ibid., p. 94.
1861. Lycosa WESTR., Aran. Suec., p. 467 (*ad partem*).
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 16 (*ad partem*).
1864. Trochosa SIM., H. N. d. Araignées, p. 345.

Type: *T. ruricola* (DE GEER).

I have not been able to discover any feature depending on difference of *form*, whereby *Arctosa* C. KOCH may with certainty be distinguished from *Trochosa* ID., and I therefore follow SIMON in uniting these two genera in one, under the latter name. A difference might perhaps be shown to exist in the form of the claws, but it does not appear to me advisable to found a genus on a characteristic, that can only be discerned by the aid of the microscope. In the species of *Arctosa* that I have had the opportunity of examining (*A. cinerea* C. KOCH, *A. picta* ID., *Lyc. leopardus* SUND.), the superior tarsal and the palpal claws have their toothless extremity considerably longer, and curved more deeply downwards, than in most other Lycosoidæ, at least on the fore legs: the superior tarsal claws are provided with teeth throughout their first half only, and on the palpal claw the teeth are seated still nearer the base. This form of the claws is, I suppose, connected with these spiders' more fully developed ability of digging themselves cylindrical holes or galleries in the earth. (Conf. preceding genus, *Tarentula*). In *T. (A.) cinerea* I have met with about 10 teeth on the superior tarsal claws of the 1st, and 12 on the 4th pair of legs, those most external being bent somewhat forward, all of about equal length; the inferior claw is small and

1) Iagttag. om den Ital. Tarantel etc., p. 245.

destitute of teeth; the palpal claw has 3 or 4 small comb-teeth close to the base. In *T. (A.) picta* the claws are somewhat shorter, with about 8 teeth on the superior tarsal claws, in *T. (A.) leopardus* with 7: in this last species I have seen *one* tooth on the inferior claw, and a very small point just behind it, at least on the 4th pair of legs. — Also in *T. intricaria* C. Koch the free extremity of the claws is very long; the superior tarsal claws have but 4 parallel teeth, of which the three outer are very coarse; the palpal claw has also 4 teeth, the innermost much smaller than the others. This species is also distinguished by the trapezoid formed by the 4 posterior eyes being twice as broad behind as in front, whereas in the typical species of the genus it is only $1\frac{1}{2}$ time as broad behind: moreover the anterior row of eyes is longer in comparison with the middle row than in the other species of the genus. But it does not appear to me necessary on account of these deviations to form a new genus for *T. intricaria*.

T. ruricola has 5—6 comb-teeth on the superior tarsal claws; the inferior claw is without teeth; the palpal claw has four gradually increasing teeth. In this species the spine, which is so frequently met with among the Lycosoidæ at the end of the male's palpus, is pointed and somewhat curved at the extremity, and thus very like a toothless claw; it is absent in *T. terricola* Thor., in which species the female's palpal claw is generally furnished with 2 coarse teeth, and a 3rd small tooth behind them.

Gen. 5. PIRATA Sund. 1833.

Deriv.: *πειρατής*, pirate.

Syn.: 1805. Lycosa Walck., Tabl. d. Aran., p. 10 (*ad part.:* "2e Fam. Les Corsaires, *Piraticæ*").
1833. „ : sub-gen. Pirata Sund., Consp. Arachn., p. 24.
1848. „ : sub-gen. †Potamia C. Koch, Die Arachn., XIV, p. 98.
1861. „ Westr., Aran. Suec., p. 467 (*ad partem*).
1861. „ Blackw., Spid. of Gr. Brit., I, p. 16 (*ad partem*).
1864. „ : sub-gen. Potamia Sim., H. N. d. Araignées, p. 349, 352.
1867. Potamia Ohl., Aran. d. Prov. Preuss., p. 126, 132.

Type: *Pirata piraticus* (Clerck).

The name *Pirata* Sund. has right of priority in preference to *Potamia* C. Koch, which latter moreover had been already several times appropriated, before Koch in 1848 applied it to the genus before us. — Vid. p. 37.

P. piraticus has about 7 long teeth on the superior tarsal claws, and one fine tooth with the rudiment of a second on the inferior claw. The

palpal claw has 3 teeth. In *P. uliginosus* THOR. there are on the superior tarsal claws about 8, on the inferior 1, and on the palpal claw 4 or 5 teeth.

Gen. 6. DOLOMEDES (LATR.). 1804.

Deriv.: *δολομήδης*, wily (*δόλος*, cunning, *μήδομαι*, devise).

Syn.: 1804. Dolomedes LATR., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 135.
1805. „ WALCK., Tabl. d. Aran., p. 15 (*ad part.:* "1e Fam. Les Riverines, *Ripuariæ*").
1833. Lycosa: sub-gen. Dolomedes SUND., Consp. Arachn., p. 24.
1861. Dolomedes WESTR., Aran. Suec., p. 534.
1861. „ BLACKW., Spid. of Gr. Brit., I, p. 37 (*ad partem*).
1864. „ SIM., H. N. d. Araignées, p. 374.

Type: *Dolomedes fimbriatus* (CLERCK).

On the superior tarsal claws of the typical species I have found 8—10 teeth; the inferior claw has a long curved tooth and a fine short point behind it; the female's palpal claw is more powerful and more sharply curved than in the preceding genera, and armed with 5 or 6 teeth. The male's palpal claw has, according to OHLERT, 5 teeth.

Under the generic name of *Dolomedes* several species are by some writers included, which by no means belong to that genus as defined by the limits which we, together with C. KOCH, WESTRING and others, have assigned it. Of the species of *Zora* (C. KOCH), which WALCKENAER refers to *Dolomedes*, we have elsewhere spoken (p. 140), as also of *Dolomedes agalenoides* LUC. (p. 121). — The East Indian genus *Dendrolycosa* DOLESCH.[1]) appears to differ from *Dolomedes* chiefly in having all the eyes small and of equal dimensions.

Gen. 7. OCYALE SAV. et AUD. 1825—27.

Deriv.: *ὠκυάλος*, moving rapidly on the sea (*ὠκύς*, swift, *ἅλς*, sea).

Syn.: 1805. Dolomedes WALCK., Tabl. d. Aran., p. 15 (*ad part.:* "2e Fam. Les Sylvines, *Sylvariæ*").
1825—27. Ocyale SAV. et AUD., Descr. de l'Égypte, (Éd. 2:) XXII, p. 372.
1861. Ocyale WESTR., Aran. Suec., p. 536.
1861. Dolomedes BLACKW., Spid. of Gr. Brit., I, p. 37 (*ad partem*).
1864. Ocyale [Ocyala] SIM., H. N. d. Araignées, p. 381.

Type: *Ocyale mirabilis* (CLERCK).

1) Tweede Bijdr. t. de Kenn. d. Arachn. v. d. Ind. Arch., p. 51.

This genus, which Blackwall, following Walckenaer, has united with *Dolomedes*, differs even in the whole of its general appearance from the preceding genera, which are more typical of the family. — On the first pair of legs the superior tarsal claws are armed with about 12 teeth, the inferior with *one* tooth; on the 4th pair there are about 9 teeth on the superior and *two* on the inferior claw; and of these last the foremost is rather long and curved, the back tooth small. The palpal claw is strong, with about 7 teeth gradually increasing in length.

[*Gen. 8. CTENUS (Walck.). 1805.

Deriv.: probably *κτήνος*, live stock, cattle, a head of cattle.

Syn.: 1805. Ctenus Walck., Tabl. d. Aran., p. 18.
1837. „ id., Hist. Nat. d. Ins. Apt., I, p. 363 (*excl.* "3e Fam. Les Phoneutres, *Phoneutriæ*").
1864. Ctenus [Ctena]: sub-gen. *id.* Sim., H. N. d. Araignées, p. 377.

Type: *Ctenus dubius* Walck.

This genus was originally formed by Walckenaer for the species we have adduced as its type. To it he afterwards referred — according to a figure and short notice, left by the painter Oudinot, and representing a spider found by him near Paris — the species *C. Oudinotii* Walck. Walckenaer had however not himself seen this spider, and no *Ctenus* has since been met with in France, so that one may reasonably doubt whether *C. Oudinotii* be really a *Ctenus*. Walckenaer also considered a spider described and figured by Albin (Nat. Hist. of Spid., p. 51, Pl. XXXIV, Fig. 167 [1])) as belonging to this genus, probably on the strength of a certain similitude in the position of the eyes (which in Albin's figure are arranged in 2 lines, the first consisting of 2, the other, which is much curved backwards, of 6 eyes); but Albin's figures, perhaps more especially those which represent the positions of the eyes, are in general so faulty, that it is impossible to place any confidence in them; and I am the less inclined to believe that the figure in question really represents a *Ctenus*, since subsequent English arachnologists have never found any species of that genus in their country. It appears therefore to me more than doubtful that the genus *Ctenus* is anywhere represented in the Fauna of Europe.]

1) This figure probably represents a *Thanatus oblongus* (Walck.).

Fam. II. OXYOPOIDÆ.

The spiders of this family, as is known, exhibit certain analogies with both *Attoidæ* and *Philodrominæ*, and seem to form a connecting link between the *Lycosoidæ* and these groups. They resemble the *Attoidæ* in their, comparatively with the Lycosoidæ, broader back of the cephalothorax, and frequently display a remarkable similitude with the *Philodrominæ* in their whole general appearance, and even in the position of the eyes (compare e. g. *Peucetia* and *Eripus*). But the *Lycosoidæ* are, as is generally admitted, their nearest relations, and it is also with them that they most closely agree in the structure of the *claws*. The tarsal claws are however usually longer than in the Lycosoidæ, with a shorter extremity and more teeth; the inferior claw has, in the species that I have examined, *two* or *three* teeth. The males have no claw at the end of the palpus. — To this family I refer two European genera, *Peucetia* and *Oxyopes*.

1. Oculi in series tres, sectorem circuli fere formantes, ordinati: 4 posteriores seriem paullo procurvam designant; medii eorum cum oculis duobus seriei 2^{dæ} in trapezium postice multo angustius, vix longius quam latius, dispositi. . . . . 1. *Peucetia.*
2. Oculi in series quatuor ordinati: 4 posteriores trapezium breve formant: oculi seriei 2^{dæ} et 4^{tæ} fere in rectangulum, evidenter longiorem quam latiorem, dispositi. . . . . 2. *Oxyopes.*

Gen. 1. PEUCETIA N.

Deriv.: *Πευκετίος*, proper name.

Syn.: †1858. Pasithea BLACKW., Descr. of six newly disc. Spid. and a new gen. of Aran., p. 427.

1866. Oxyopes SIM., Sur quelques Araignées d'Espagne, p. 287 (*ad partem*).

Type: *Peucetia viridis* (BLACKW.).

The type of this genus is *Oxyopes littoralis* SIM. (loc. cit.), but this species appears to me to be identical with *Pasithea viridis* BLACKW. (loc. cit.), which was first by BLACKWALL aggregated to the *Laterigradæ*, but afterwards [1]) rightly to the *Citigradæ*. — *P. viridis* differs from *Oxyopes*, to which genus it is referred by SIMON, not only in the position of the eyes,

1) BLACKWALL, Descr. of recently disc. spec. etc. from the East of Central Africa, p. 6.

but also by its long, slender maxillæ dilated at the base, etc. The superior spinners are distinctly longer than the inferior. The claws are more powerful than in the genus *Oxyopes:* the superior tarsal claws have only about 7 long, strong, pointed comb-teeth, and the inferior has *three*, of which the outermost two are long and curved. — Of this handsome spider, which has been found in Algeria and Spain, I am acquainted only with the male, of which Mr. Simon kindly sent me a specimen. The name *Pasithea* being already appropriated, I have substituted a new (vid. p. 36, 37).

Gen. 2. OXYOPES Latr. 1804.

Deriv.: ὀξυωπής, sharp-eyed (ὀξύς, sharp; ὤψ, eye).

Syn.: 1804. Oxyopes Latr., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 135.
1805. Sphasus Walck., Tabl. d. Aran., p. 19.
1861. „ Westr., Aran. Suec., p. 538.
1861. „ Blackw., Spid. of Gr. Brit., I, p. 43.
1864. Oxyopes [Oxyopa] Sim., H. N. d. Araignées, p. 386.

Type: *Oxyopes variegatus* Latr.

On the upper tarsal claws of *O. variegatus* I have counted, on the outer about 17, and on the inner about 14, long, fine, close, parallel comb-teeth; the inferior claw terminates in a long, fine, straight point, and has *two* fine, long, curved teeth at the base. The palpal claw is small, with 10 close-set, fine comb-teeth. *O. italicus* has but about 10 teeth on the superior tarsal claws; on the inferior claw it has two powerful, curved teeth, and on the palpal claw about 8 long teeth.

The Brazilian genus *Idiops* Perty [1]) is by Walckenaer [2]) taken up as synonymous with *Sphasus* or *Oxyopes:* it has, it is true, a certain resemblance to that genus in the position of the eyes; but the direction of the mandibular claw, which is articulated *longitudinally*, as in the *Territelariæ*, appears to us to show, that *Idiops* belongs to that sub-order, to which it is also referred by Perty. The species described by him, *I. fusca* [3]), shows in the form of the male's palpi an evident analogy with the genus *Actinopus* Perty among the *Theraphosoidæ*, from which genus *Idiops* in other respects would seem to be widely separated. The form of its cephalothorax displays some resemblance to that of *Filistata* Latr.

1) Delect. Anim. Art. Bras., p. 197.
2) Hist. Nat. d. Ins. Apt., I, p. 379.
3) Delect. Anim. Art. Bras., p. 198, Pl. XXXIX, fig. 5.

Sub-ordo VII. SALTIGRADÆ.

Syn.: 1804. Gen. Salticus LATR., *in* Nouv. Dict. d'Hist. Nat., XXIV, p. 135.
1817. "Saltigrades" ID., *in* CUV., Règne Anim., III, p. 98.
1823. Saltatores SUND., Gen. Aran. Suec., p. 20.
1825. Saltigradæ LATR., Fam. Nat., du Règne Anim., p. 317.
1833. Attides SUND., Consp. Arachn., p. 25.
1843. Salticidæ BLACKW., The differ. in the numb. of eyes, etc., p. 616.

The spiders belonging to this group are, as is known, distinguished by their high cephalothorax, which has almost vertical sides and a very broad back, by their usually short and thick extremities, and by the peculiar position of their eyes, which most nearly approaches that of the Lycosoidæ: 4 eyes in fact form a first row, and the remaining 4 a second and third. An exception in the disposition of the eyes is presented by the exotic family *Otiothopoidæ*, in which the eyes form only *two* transversal rows, converging at the ends, and by *Lyssomanes* among the *Attoidæ*, which genus has its eyes arranged in *four* transversal rows. In the *Myrmecioidæ* the eyes may be as truly said to form *two* rows divergent at the ends, as *three;* in *Palpimanus* also they are arranged in two rows, *both* greatly curved in opposite directions, so that one might even say that the eyes of that genus form *four* rows. The family *Dinopoidæ*, which we, though with doubt, refer to this sub-order, differs especially in its very long and fine extremities from other Saltigradæ. Also in certain other genera, as for example *Myrmecium*, *Salticus* and *Leptorchestes*, the extremities are fine, though somewhat short. — The spinners, as far as is known, are six in number, usually not very long. There are generally but two claws on each tarsus, and in this case there is also, except in *Palpimanus* (and *Otiothops?*) a tuft of hairs dilated at the end immediately under the claws; *Eresus* (as well as *Dinopis?*) has 3 claws on each tarsus, as also a claw at the termination of the female's palpus, which is absent in at least *Attoidæ* and *Palpimaninæ*. Most Saltigradæ leap actively, whence the name.

We resolve the European Saltigradæ into two families, *Eresoidæ* and *Attoidæ*, according to the following distinctive features:

1. Cephalothorax antice valde elevato-convexus. Oculi 2 postici inter se multo longius distantes quam sunt duo proxime antecedentes. Tarsi unguibus trinis aut binis instructi, fasciculo unguiculari carentes. . . . . I. *Eresoidæ.*
2. Cephalothorax deplanatus, parte cephalica non vel paullo tantum altiore quam parte thoracica. Oculi 2 postici inter se non multo longius qnam 2 antece-

dentes remoti. Oculi 4 anteriores inter se proximi: medii (antici) eorum reliquis omnibus multo majores. Tarsi unguibus tantum binis et fasciculo unguiculari instructi. (Palpus feminæ ungui caret). . . . . II. *Attoidæ.*

Fam. I. ERESOIDÆ.

Syn.: 1850. Eresides C. Koch, Uebers. d. Arachn.-Syst., 5, p. 70.

The two sub-families, into which we divide this family, certainly agree in the structure of the cephalothorax, the position of the eyes, and in their whole general appearance very closely with each other, but present the remarkable difference, that whereas the *Eresinæ* are provided with infra-mammillary organ and calamistrum, the *Palpimaninæ* are without these organs. The two genera *Eresus* and *Palpimanus (Chersis)* had already by Walckenaer [1]) and Dufour [2]) been placed in the closest connexion with each other and with *Attus;* Sundevall [3]) and C. Koch [4]) received them into the family *Attides*, and when the latter afterwards detached them from that family, he united them with the new-formed family *Eresides*, which received a place immediately after the *Attides* [5]). — Canestrini and Pavesi [6]) who unite *Eresus* with the Attoidæ, have formed a separate family, *Chersidæ*, for *Palpimanus*, a view which I cannot approve. How Simon [7]) could refer *Eresus* to the *Epeiroidæ* and *Palpimanus* to the *Myrmecioidæ* is to me inexplicable. — We characterize the two sub-families and thereto belonging European genera as follows:

I. Organum infra-mamillare et calamistrum adsunt. . . . . I. Eresinæ.
  1. Oculi seriei tertiæ longe pone reliquos siti; laterales seriei 1mæ ab intermediis ejusdem seriei longissime remoti. Tarsi omnes unguibus trinis instructi. (Palpus feminæ ungui armatus). Mamillæ breves. . 1. *Eresus.*

II. Organum infra-mamillare et calamistrum desunt. . . . . II. Palpimaninæ.
  1. Oculi seriei 3tiæ paullo tantum pone oculos 2dæ seriei siti, cum iis seriem recurvam formantes. Tarsi pedum 6 posteriorum unguibus tantum binis armati. (Palpus feminæ ungui caret). . . . . 2. *Palpimanus.*

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1) Tabl. d. Aran., p. 21; Mém. sur une nouv. Classif. d. Aran., p. 438; Hist. Nat. d. Ins. Apt., IV, p. 525.
2) Descr. de six Arachn. nouv., p. 364.
3) Consp. Arachn., p. 27.
4) Uebers. d. Arachn.-Syst., 1, p. 34.
5) Ibid., 5, p. 70.
6) Aran. ital., p. 75—76.
7) Hist. Nat. d. Araignées, p. 299, 448.

Sub-fam. I. ERESINÆ.

This sub-family includes for the present 2 genera, *Eresus* Walck. and *Dorceus* C. Koch (exotic and distinguished by long, three-jointed mamillæ). C. Koch has indeed divided *Eresus* into two genera, *Erythrophora* and *Eresus* [1]), but as the genus *Erythrophora* can hardly be distinguished from *Eresus* by anything else than a difference of colour, it seems to me not deserving of preservation.

Gen. 1. ERESUS Walck. 1805.

Deriv.: probably ἐρείδω, press against, inflict, attack.

Syn.: 1805. Eresus Walck., Tabl. d. Aran., p. 22.
1837. Chersis id., H. N. d. Ins. Apt., I, p. 390 (*ad partem*).
1850. Eresus C. Koch, Uebers. d. Arachn.-Syst., 5, p. 50.
1850. Erythrophora id., ibid.
1861. Eresus Blackw., Spid. of Gr. Brit., I, p. 45.
1864. „ [Eresa] Sim., H. N. d. Araignées, p. 299 (*ad max. part.*).

Type: *Eresus cinnaberinus* (Oliv.).

In the few species of this genus known to me, the calamistrum is but slightly developed. In a ♀ of *E. lineatus* Latr. or *E. acanthophilus* Duf. [2]), which has the upperside of the two posterior metatarsi somewhat flattened, the calamistrum is plainly visible on the external edge; but in the male of *E. cinnaberinus*, in which these metatarsi are cylindrical as in the other legs, I cannot perceive any calamistrum distinguishable from the adjacent fine hair. The infra-mammillary organ is on the contrary easily seen in both species: in *E. lineatus* it forms a very narrow, uniformly broad, transversal area, which appears to be divided into two by a middle suture, and exhibits *two rounded foveæ* [3]), one on each side, and a small depression behind these, near the spinners.

The tarsal claws of *Eresus* are short, but extremely broad and strong,

1) Uebers. d. Arachn.-Syst., 5, p. 70.

2) This species was first described by Latreille in the 2nd Edition of Nouv. Dict. d'Hist. Nat., X, p. 393 — which I have not been able to consult — under the name of "*Erèse rayé*" (see for inst. Walck., Ins. Apt., I, p. 399), probably also with the Latin name *Eresus lineatus:* at least it is by Audouin, in Dict. class. d'Hist. Nat., VI, p. 253, called "*Eresus lineatus* Latreille".

3) Conf. note, p. 30.

uniformly and much curved, pectinated. In *E. lineatus* ♀ the superior claws of the first pair of legs are from the base to near the apex armed with about 12 long, strong comb-teeth, and the inferior claw with 3 long teeth. On the 4th pair the teeth are less numerous, 7 or 8 on the superior claws, while the inferior claw seems to be without teeth. The female's palpal claw is also short, very strong, and provided with about 9 coarse teeth. *E. cinnaberinus* ♂ has about 16 (and 14) teeth on the superior claws, and 2 on the inferior.

The *Aranea nigra* of Petagna [1]), to which Walckenaer has given the name *Chersis dubius* [2]) is most certainly an *Eresus* (perhaps but a variety of *E. cinnaberinus*) and not a *Chersis (Palpimanus)*.

Sub-fam. II. PALPIMANINÆ.

Syn.: 1869. Chersidæ Canestr. et Pav., Aran. Ital., p. 75.

Of this family only one genus is known, that namely formed by L. Dufour under the name of *Palpimanus*.

Gen. 2. PALPIMANUS Duf. 1820.

Deriv.: *palpare*, caress, touch; *manus*, hand.

Syn.: 1820. Palpimanus Duf., Descr. de six Arachn. nouv., p. 12.
1825—27. Platyscelum Sav. et Aud., Descr. de l'Égypte, (2 Éd.:) XXII, p. 401.
1837. Chersis Walck., H. N. d. Ins. Apt., I, p. 390 (*ad max. part.*).
1864. „ Sim., H. N. d. Araignées, p. 448 (*ad max. part.*).

Type: *Palpimanus gibbulus* Duf.

Palpimanus is, as may be seen from the synonyms, the oldest name of the genus, and there is no plausible reason for abandoning it. That certain *Attoidæ* also have thicker fore-legs, which appear to serve as organs of touch (whence the name *Palpimanus*), and that Savigny *intended* to call it *Chersis* [3]), can of course be no reason for cashiering the name *Palpima-*

1) Spec. Ins. Ulter. Calabriæ, p. 34 (of the Ed. printed "Francofurti et Moguntiæ, 1787").

2) Hist. Nat. d. Ins. Apt., I, p. 392.

3) Conf. Walck., Ins. Apt., I, p. 393. — Simon considers that the name *Palpimanus* must mean that the *palpi* resemble *hands;* but this is not the case: *manus* here signifies the *fore-legs*, not the *palpi*.

nus, that name not being unfit for the animal to which it has been applied, and having been published long before the name *Chersis*.

The genus *Palpimanus* is extremely interesting, not only on account of the well known singular form of its first pair of legs, but also for certain characteristics, which mark it as a connecting-link between *Eresinæ* and *Attoidæ*. The agreement with these last in the absence of an inframammillary organ and calamistrum, we have already mentioned: also the close position of the 4 anterior eyes, of which the 2 central ones are larger than the other 6, shows a tendency to similitude to the *Attoidæ*. The female's palpi are incrassated outwards, flattened on the underside, and, like those of the last-mentioned spiders, destitute of a claw at the extremity. In the *Eresinæ*, as we have already observed, the fasciculus unguicularis or claw-tuft usually found in the *Attoidæ*, is wanting: it is also absent in *Palpimanus;* but the peculiarly formed hairs of which it is composed are found in that genus, though they have been transferred to another place. The broad compressed metatarsus has in fact (in *P. gibbulus*) both its superior and inferior edge covered with hairs which rapidly dilate to oval or spade-like blades, and a band of such hairs, enclosed by longer, pointed bristles, is continued also along the upper edge of the tibia and patella. These hairs are longer on the upper edge of the metatarsus, where they are mixed with numerous longer, pointed bristles, than on its underside, where they are closer, shorter and of uniform length, and where only a few longer, pointed bristles occur; they accordingly here form a *scopula*, which is continued under a part (the base) of the tarsus itself. This joint is else only covered with pointed hairs and bristles.

The claws, as is known, are but 2 in number on the tarsi of the six posterior legs. They are weaker than those of the *Eresinæ*, and stouter than those of the *Attoidæ*. They are rather large, of uniform breadth, and curved in the form of a semicircle; the outer claw has (in *P. gibbulus*) on the 4th pair of legs about 7 teeth, the inner 6; on the 2nd and 3rd pairs the teeth are less numerous (5 and 4 on the 2nd pair). These teeth are conical, rather short and far apart.

According to DUFOUR'S frequently repeated statement, *P. gibbulus* differs from all other spiders by having *no claws on the first pair of legs.* This is nevertheless so far from being the case, that this spider has really no less than *three claws on the first pair of legs, but only two on the succeeding pairs!* In this respect *Palpimanus* probably stands quite alone in the order of spiders. The claws on the 1st pair are however so small that they are quite concealed by the hairs at the extremity of the tarsus,

and can only be clearly seen with a good microscope. The superior ones are similar in form to those of the following legs, except that they are less curved and have only about 3 conical teeth; the inferior claw has the form of a very small hook, sharply bent downwards, with a long fine extremity, and seems to be armed on the underside with *one* long fine tooth. Thus the number of claws on the first pair is the same as in *Eresus*, and on the other legs as in the *Attoidæ*.

Fam. II. ATTOIDÆ.

Syn.: 1850. Attides C. Koch, Uebers. d. Arachn.-Syst., 5, p. 42.

This family, perhaps the most sharply defined and most natural within the whole order of *Araneæ*, is without difficulty distinguished from the *Eresoidæ* by the peculiar position and relative size of the eyes. The claws are in all cases only two on each tarsus [1]); they are long and slender, a little sinuated (i. e. with a slight ∽-formed curvature), and spring at a right or slightly acute angle from the upper end of the narrow and high part formed by their base. The tooth-armature is very various, and ordinarily different on the inner and outer claw, the number of teeth on the former being usually far greater than on the latter. The teeth, when there are any, occupy only the outer half of the claw's length; near the base there are no teeth, except now and then on the first pair of legs, the claws of which are often shorter and more uniformly curved than those of the other legs. The 4th pair of legs has usually the claws longest and most copiously provided with teeth. The claw-tuft is formed of hairs that are either flattened and gradually more or less dilated towards the end, or dilated and flattened at the extremity only; in this respect the tufts on the different pairs of legs are often very different; they are sometimes, on the 1st pair, continued as a scopula on the underside of the tarsus. In all the species that have been examined, the female's palpi are destitute of a terminal claw, a circumstance, which in other families, with the exception of the *Scytodoidæ*, only occurs exceptionally. I believe it is only the species of this family, that justify the name "jumping-spiders", given to the whole

1) *Attus phrynoides* Walck. (Ins. Apt., I, p. 479) is said to have on its extraordinarily long 1st pair of legs *(pedes raptorii)* only *one* toothless claw. This species ought undoubtedly to form a separate genus, to which also *Attus obisioides* Dolesch. (Bijdr. t. d. Kenn. d. Arachn. v. d. Ind. Arch., p. 433) ought to be referred. This new genus, characterized by the long trochanteres of the fore-legs, may be called *Diolenius* (*διωλένιος*, with outstretched arms).

sub-order. — All the European species may be referred to one and the same sub-family *(Attinæ)*; among exotic forms perhaps *Lyssomanes* HENTZ [1]), ought to be considered as the type of a separate sub-family, characterized by the eyes being arranged in *four* transversal rows: the lateral eyes of the first row in the ordinary Attoidæ are in fact in *Lyssomanes* removed so high up that they form a separate row about half-way between the first and third pair of eyes. The relative size of the eyes is however exactly the same in *Lyssomanes* as in the Attinæ, i. e. the first pair is considerably larger and the third pair considerably less than the other eyes. (In the *Dinopoidæ*, in which the position of the eyes is the same as in the *Attinæ*, the relative size of the eyes is altogether different: it is in fact the last pair but one, or the eyes of the 2nd row, which in that family are considerably larger than the rest). — Calamistrum and infra-mammillary organ are absent.

There is no family in the whole order of spiders, which, on account of the great similarity between the species, is so difficult to resolve into good genera, as this, while at the same time its extraordinary richness in species renders such a resolution in the highest degree desirable. In the works of the older writers, from LATREILLE and WALCKENAER inclusively, the whole family constitutes but one genus, *Salticus* LATR. or *Attus* WALCK., which by many arachnologists, among whom is BLACKWALL, is still preserved undivided. But already in 1832 HENTZ [2]) detached from *Attus* WALCK. the genus *Synemosyna*, which partly answers to *Leptorchestes* NOB. or *Salticus* C. KOCH (non SUND.), as also *Epiblemum* (ad part. = *Calliethera* C. KOCH). SUNDEVALL [3]), who is followed by WESTRING, the following year divided *Attus* WALCK. into two genera, *Salticus* and *Attus*, which easily admit of distinction. This on the contrary is not the case with most of the Attoid-genera proposed by C. KOCH (in Uebers. d. Arachn.-Syst., Die Arachniden, etc.) between 1835 and 1850, and which have been pretty generally received, in spite of the imperfect manner in which they have been characterized. WHITE in 1841 [4]) formed the genus *Homalattus* and in 1846 [5]) *Dineresus [Deineresus]*, both exotic. OHLERT [6]) has endeavoured to define more accurately those of KOCH'S genera, which belong to the Prus-

1) Aran. of the United States, *in* Boston Journ. of Nat. Hist., V, p. 197.
2) On North American Spiders, p. 108.
3) Svenska Spindl. Beskr., *in* Vet. Akad. Handl. f. 1832, p. 199, 201.
4) Descr. of new or little known Arachn., p. 446.
5) Descr. of a new genus of Arachn. etc., p. 179.
6) Aran. d. Prov. Preuss., p. 148—150.

sian Fauna; but his attempts do not appear to me to have fully succeeded, chiefly on account of the insufficient materials he had at his disposal. Simon in 1864 [1]) combined C. Koch's many genera so as to form *five*, *Rhanis* C. Koch (= *Rhene* Thor.: Vid. p. 37), *Attus* Walck., *Cyrtonota* Sim., *Heliophanus* C. Koch and *Salticus* (Latr.), of which the last four belong to the Fauna of Europe; the greatest part of Koch's genera (and sub-genera) Simon accepted as separate sub-genera or "groups" [2]). Simon's classification of the Attoidæ here referred to, appears to me very defective, and can hardly be considered as making any advance towards the solution of the difficult problem; the genus *Cyrtonota*, in which he includes Koch's *Calliethera* together with *Philia*, *Plexippus*, etc. especially is very unnatural. Simon himself has moreover since abandoned this division and adopted another quite different; he now [3]) divides the European Attoidæ into 10 genera (of which two, *Menemerus* and *Yllenus*, are new) according to characteristics principally derived from the *form of the male's palpi and mandibles.* This division has indeed the advantage of being based upon fixed and easily observable differences of form, but it has also the great defect of applying only to one (and that the rarer) sex; it is impossible to say to which of Simon's genera a female specimen belongs, as long as the male of the same species is unknown, unless it should happen, that the females of that genus are also distinguished by some common feature; but in such case that feature ought to have been included among the characteristics of the genus. I have already (p. 19, 83) stated my objections to the adoption of genera depending upon characteristics that apply only to one sex, or that are derived from a difference of form in the organs of copulation alone.

What has here been said, sufficiently indicates my opinion, that a natural arrangement of the Attoidæ is as yet a *pium desiderium.* For my own part I have awhile hesitated between two methods of proceeding — either to adopt only *three* genera, *Salticus* (*Pyrophorus* C. Koch), *Leptorchestes* (*Salticus* C. Koch) and *Attus;* — or to adopt and endeavour as well as possible to characterize those of the genera formed by C. Koch, which belong to the European Fauna. These genera are in fact pretty well known as regards their general appearance, and they have also been acknowledged

1) Hist. Nat. d. Araignées, p. 307. — *Dinopis* [*Deinopis*] Mac Leay, which Simon also refers to the Attoidæ, is in our opinion the type of a separate family, *Dinopoidæ.* Vid. p. 43.

2) For *Attus Doumercii* Walck. he proposed *Lagenicola* as a new sub-genus of *Attus* (loc. cit., p. 316).

3) Monogr. d. espèces Europ. de la fam. d. Attides, p. 16.

by several arachnologists. They moreover on the whole form tolerably natural groups, although KOCH has not succeeded in giving any reliable diagnosis of them. I have determined on adopting the second, far more difficult alternative, because I believe the division of the genus *Attus* WALCK. into several smaller genera to be a matter of great practical importance, especially on account of the great number of exotic species that have been described, and which furnish an amount of materials which it will be scarcely possible to manage, unless one can distribute them among smaller generic groups. I am however by no means satisfied with the result of the experiment I have made, and the following arrangement, of the many defects of which I am perfectly conscious, must therefore be looked upon as merely provisional. It may however possibly, even if but negatively, contribute in some measure to the solution of the problem. None but a person having at his disposal far more comprehensive materials for research than I can command, can hope to arrive at any fully satisfactory result.

All C. KOCH's European genera have been here employed, with the exception of *Icelus* [1]), which is founded on a feature (the back of the mandibles raised to a sharp ridge) belonging only to one sex, the males. Two of his sub-genera, *Ballus* and *Dia* (*Ælurops* NOB.) have been promoted to the rank of genera, the others I have been obliged to pass by. I have also endeavoured to give a place in my scheme to the genera *Menemerus* and *Yllenus* formed by SIMON.

§ Pars cephalica parte thoracica abrupte altior. Quadrangulus oculorum (ex oculis seriei 3^{tiæ} et lateralibus seriei 1^{mæ} formatus) vix vel non longior quam latior. Corpus longum et angustum. Pedes tenues. . . . . 1. *Salticus.*

§§ Pars cephalica parte thoracica non altior.

† Quadrangulus oculorum longior quam latior: oculi seriei 3^{tiæ} fere in medio cephalothorace siti. Corpus longum et angustum; pedes tenues. 2. *Leptorchestes.*

†† Quadrangulus oculorum saltem postice latior quam longior.

* Metatarsi et tibiæ omnes aculeis carentes. Cephalothorax duplo fere longior quam latior, humilis, dorso sub-recto. Oculi seriei 1^{mæ} contingentes: medii eorum a margine clypei vix emarginati spatio brevissimo remoti [2]). . . . . 3. *Epiblemum.*

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1) The name *Icelus* was already in 1844 by KROYER given to a genus of fishes.

2) In order to judge rightly of the eyes' distance from the edge of the clypeus and of the form of the latter, it is necessary to remove at least a part of the thick covering of hair which ordinarily conceals the edge: moreover the membrane, which unites the base of the mandibles, and which is sometimes covered with hair, and frequently visible under the edge of the clypeus, must not be reckoned as part of the clypeus.

** Metatarsi pedum saltem anteriorum evidenter aculeati.

A. Oculi seriei 3^tiæ non longius a margine cephalothoracis quam inter se remoti.

a. Cephalothorax plerumque duplo fere longior quam latior, minus humilis, dorso evidenter arcuato. Quadrangulus oculorum postice paullo latior. Oculi seriei 1^mæ sub-contingentes, a margine clypei profunde emarginati et sub-nudi spatio brevissimo tantum remoti. . . . . 4. *Heliophanus.*

b. Cephalothorax non duplo longior quam latior.

α. Cephalothorax humilis valde, dorso sub-plano. Oculi seriei 3^tiæ plerumque multo longius inter se quam a margine cephalothoracis remoti.

1. Quadrangulus oculorum postice evidenter latior quam antice; oculi seriei 3^tiæ non multo ante medium cephalothoracis siti. Pars cephalica magna, lata. Oculi medii seriei 1^mæ a margine clypei vix emarginati satis remoti. . . . . 5. *Ballus.*

2. Quadrangulus oculorum postice vix vel non latior quam antice. Oculi seriei 3^tiæ longe ante medium cephalothoracis siti; oculi seriei 1^mæ disjuncti; medii eorum a margine clypei vix emarginati spatio remoti quod $\frac{1}{3}$ diametri oculi plerumque æquat. Corpus satis longum et depressum . . . . . 6. *Marpessa.*

β. Cephalothorax altus, antice non angustatus, dorso evidenter arcuato. Oculi seriei 3^tiæ parum longius inter se quam a margine cephalothoracis remoti. Quadrangulus oculorum postice non latior quam antice. Oculi seriei 1^mæ contingentes: medii eorum a margine clypei vix emarginati spatio remoti quod $\frac{1}{4}$ diametri oculi non superat. (Pictura abdominis sæpissime ex colore ipsius cutis, non ex colore pilorum pendet). . . . . 9. *Euophrys.*

B. Oculi seriei 3^tiæ longius a margine cephalothoracis quam inter se remoti.

a. Cephalothorax minus altus, dorso leviter tantum arcuato, parte cephalica parum declivi, ita ut oculi seriei 3^tiæ vix diametro sua altius quam oculi laterales seriei 1^mæ sint siti. Oculi seriei 1^mæ subrectæ inter se proximi, sed non contingentes: medii eorum a margine clypei fortiter emarginati spatio remoti quod dimidiam diametrum oculi æquat. Corpus longius, sub-depressum. 7. *Menemerus.*

b. Cephalothorax altus, immo altissimus, parte cephalica adeo declivi ut oculi seriei 3^tiæ multo altius quam oculi laterales seriei 1^mæ siti sint.

α. Metatarsi pedum posteriorum circa apicem tantum aculeis armati. Quadrangulus oculorum postice paullo latior quam antice. Oculorum series 1^ma paullo recurva: medii eorum a margine clypei evidentius emarginati spatio remoti, quod dimidiam diametrum oculi fere æquat. Corpus longius villosum. 8. *Dendryphantes.*

β. Metatarsi pedum posteriorum non tantum ad apicem aculeati.

I. Oculi medii seriei 1^mæ, quum desuper inspiciatur cephalothorax, ante frontem eminentes.

1. Mandibulæ facie circa duplo longiores (an etiam in ♀?). Oculi seriei 1^mæ sub-recurvæ disjuncti; medii eorum a margine clypei, profunde emarginati et sparse tantum pilosi, spatio remoti, quod dimidiam diametrum oculi vix æquat. Pedes longiores. . . . . 10. *Philæus.*

2. Mandibulæ facie non vel paullo tantum altiores. Oculi seriei 1^mæ rectæ vel sub-recurvæ a margine clypei, pilis densis plerumque tecti, spatio remoti quod dimidiam oculi diametrum plerumque superat. . . . . 11. *Attus.*

II. Frons adeo prominens, ut oculi medii seriei 1^mæ, quum desuper inspiciatur cephalothorax, a margine frontis occultentur. Series oculorum 1^ma recurva; medii eorum a margine clypei dense pilosi spatio remoti, quod dimidiam diametrum oculi superat. Pedes posteriores anterioribus longiores.

1. Tibia pedum 4^ti paris evidenter brevior quam metatarsus cum tarso. . . . . 12. *Æluropς.*

2. Tibia pedum 4^ti paris æque saltem longa ac metatarsus cum tarso. Ungues præsertim horum pedum longissimi, dentibus longissimis pectinati. . . . . 13. *Yllenus.*

SIMON also takes up *Plexippus* among the European Attoidæ, and gives as the chief features that distinguish it from nearly related genera the following characteristics of ♂: "*patte machoire* (the palpus) *grêle*, *très longue*, *à tarse moins large que la jambe*" [1]). He assigns to it only one European species, *P. Adansonii* SAV. et AUD. I do not know to which genus this to me unknown spider ought properly to be aggregated: SIMON indeed calls his *Plexippus:* "*Plexippus* C. KOCH ex parte"; but he also says of it: "Tel que nous le concevons ce genre n'a aucun rapport avec celui de M. KOCH" [2]), and I therefore do not venture to take up *Plexippus* KOCH among the European genera.

Gen. 1. SALTICUS (LATR.). 1804.

Deriv.: *salticus*, dancing, leaping.

Syn.: 1804. Salticus LATR., Nouv. Dict. d'Hist. Nat., XXIV, p. 135 (*ad part.*).
1805. Attus WALCK., Tabl. d. Aran., p. 22 ("2^e Fam. Les Voltigenses, *Volatiliæ*" *ad partem*).

1) Monogr. d. espèces Europ. de la fam. d. Attides, p. 6 (16).
2) Ibid., p. 178 (644).

1833. Salticus Sund., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1832, p. 199.
† 1837. Pyrophorus C. Koch, Uebers. d. Arachn.-Syst., 1, p. 29.
1861. Salticus Westr., Aran. Suec., p. 543.
1861. „ Blackw., Spid. of Gr. Brit., I, p. 47 (*ad partem*).
1864. „ [Saltica]: sub-gen. Pyrophorus [Pyrophora] Sim., H. N. d. Araignées, p. 336.
1868. Pyrophorus Sim., Monogr. d. espèees europ. de la fam. d. Attides, p. 6 (16).
1869. Pyroderes id., ibid., p. 248 (714).

Type: *Salticus formicarius* (De Geer).

When Sundevall in 1833 (loc. cit.) divided *Salticus* Latr. or *Attus* Walck. into two genera, *Salticus* and *Attus*, it was for a species of the genus afterwards by C. Koch called *Pyrophorus*, that he preserved the former, older name, and not for a *Salticus* C. Koch, which genus was to him unknown. This appears immediately from the description of Sundevall's *Salticus formicarius*, the ♂ of which has the mandibles *"fere porrectæ, supra planæ"* etc. The very generic diagnosis of *Salticus* Sund. (*"Pars cephalica abrupte altior quam thoracica; ... oculi ... aream quadratam ... delineantes"*) is suitable only to *Pyrophorus*, and not to *Salticus* Koch, and this last genus cannot therefore be considered as corresponding to *Salticus* Sund. even *ad partem*. As the name *Salticus* came by a mistake only — Koch erroneously supposed his *Salticus formicarius* to be identical with the species, to which Sundevall had assigned that name — to be applied by Koch, and after him by Ohlert and others, to an entirely different genus from that so denominated by Sundevall, whereas the real *Salticus* (Latr.) Sund. was by Koch rechristened *Pyrophorus*, we must of course restore to that genus its original name. *Pyrophorus* is moreover, as Simon has already remarked, the universally received name given by Illiger in 1809 to the so called "American fire-flies", belonging to the Elaterida (Coleopt.). The genus *Salticus* Koch we call *Leptorchestes*.

The tarsal claws of *Salticus formicarius* are of the usual form, long and slender; on the 4th pair the inner claw has about 8 and the outer about 5 very short, thick, blunt teeth. The hairs in the claw-tuft are dilated spade-wise at the apex.

Gen. 2. LEPTORCHESTES n.

Deriv.: λεπτός, slender; ὀρχηστής, dancer.

Syn.: 1832. Synemosyna Hentz, On North Amer. Spid., p. 108 (*ad partem*).
1836. Attus Luc., Attus venator, *in* Guér., Mag. de Zool., 6e Année, Cl. VIII, Pl. 15.

1837. Salticus C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 29.
1864. „ [Saltica]: sub-gen. *id.* SIM., H. N. d. Araignées, p. 335 (*ad max. part.*).
1868. „ SIM., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 241 (707).

Type: *Leptorchestes formicæformis* LUC.

Concerning *Salticus* (LATR.) SUND. see preceding genus. As type for *Leptorchestes* (*Salticus* C. KOCH) I have taken LUCAS' *Attus formicæformis*, which is identical with *Salticus formicarius* C. KOCH. The right *Salticus formicarius* (DE GEER) and SUND., is the same as *Pyrophorus semirufus* C. KOCH.

The genus *Synemosyna* HENTZ answers properly speaking to *Janus* C. KOCH, but under the former name species have also been included, which belong to *Leptorchestes*, and perhaps even to *Salticus* SUND. *Synemosyna formica* HENTZ [1]), which appears to be typical for the genus, is a *Janus*, and it is therefore this latter name, which must give place to the older appellation *Synemosyna:* the name *Janus* is moreover already appropriated (see p. 36).

In the typical species the claws are small, of quite an ordinary form, sinuated, with about 7 teeth gradually increasing in length on the inner and about 3 on the outer claw. The hairs of the claw-tuft are much dilated at the extremity.

Gen. 3. EPIBLEMUM (HENTZ). 1832.

Deriv.: *ἐπίβλημα* (*ἐπί*, on, *βάλλω*, throw), that which is thrown on or over (in allusion to the animal's swift motions, or the projecting mandibles of ♂).

Syn.: 1832. Epiblemum HENTZ, On North Amer. Spid., p. 108 (*ad partem*).
1837. Calliethera C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 30 (*ad partem*).
1850. „ ID., ibid., 5, p. 45 (*ad max. part.*).
1861. Attus WESTR., Aran. Suec., p. 543 (*ad partem*).
1861. Salticus BLACKW., Spid. of Gr. Brit., I, p. 47 (*ad partem*).
1864. Cyrtonota: sub-gen. Calliethera SIM., H. N. d. Araignées, p. 324, 327 (*ad partem*).
1868. Calliethera [Callietherus] ID., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 180 (646) (*ad max. part.*).

Type: *Epiblemum faustum* HENTZ.

In the above-cited passage, where HENTZ proposes the genus *Epiblemum*, he distinguishes it from *Attus* WALCK. by the mandibles being

1) Aran. of the United States, *in* Boston Journ. of Nat. Hist., V, p. 368, Pl. XXII, fig. 18.

"nearly horizontal, slender, as long as the cephalothorax, tooth as long." Of the two species adduced, *E. faustum* and *E. palmarum*, the first-named is made type of the new genus. But that *E. faustum* is so extremely like our European *Calliethera histrionica* C. Koch and *C. scenica*, that I imagine it to be identical with one or other of them [1]), and they must accordingly resign their generic name *Calliethera* for the older name *Epiblemum*. — *E. palmarum* is perhaps a *Plexippus* C. Koch, and certainly does not belong to the same genus as *E. faustum*.

Simon refers to *Calliethera* also for inst. the species *C. infima* [*-us*] Sim., which its whole appearance, the spines on its legs, etc. indicate in my opinion to belong to *Heliophanus* C. Koch.

The male *Epiblemum*, like the male *Salticus*, is distinguished by its almost horizontal, projecting mandibles. — The eyes of the 3rd row are farther from each other than from the margin of the cephalothorax. The claws are very long and slender, and the teeth on the inner claw very numerous (about 15 in *E. histrionica* on the 4th pair), on the outer claw on the contrary few (in the above named species about 3); the number is however very variable. The hairs of the claw-tufts are gradually somewhat dilated.

Gen. 4. HELIOPHANUS C. Koch. 1833.

Deriv.: ἥλιος, sun; φαίνω, show, shine.

Syn.: 1833. Heliophanus C. Koch, *in* Herr.-Schæff., Deutschl. Ins., 119, 1, 2.
1837. „ id., Uebers. d. Arachn.-Syst., 1, p. 29.
1861. Attus Westr., Aran. Suec., p. 543 (*ad partem*).
1861. Salticus Blackw., Spid. of Gr. Brit., I, p. 47 (*ad partem*).
1864. Heliophanus [Heliophana] Sim., H. N. d. Araignées, p. 332 (*saltem ad part.*).
1868. „ Sim., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 201 (667).
1868. Calliethera [Callietherus] id., ibid., p. 6 (16), 180 (646) (*ad partem*).

Type: *Heliophanus cupreus* (Walck.).

The males of this genus, which is easily recognized by its general appearance, are usually distinguished, as Koch has already remarked, by

1) Conf. the description and figure of *E. faustum* in Aran. of the United States (Boston Journ. of Nat. Hist., V, p. 367, Pl. XXII, fig. 17). — Blackwall, who does not consider *E. histrionicum* as specifically different from *E. scenicum*, includes "*Salticus scenicus*" in a catalogue of spiders from *Canada*. (Notice of Spid. capt. by Potter in Canada, p. 34).

a strong tooth on the underside of the pars femoralis of the palpus. In some species the cephalothorax is not double as long as it is broad, but it is easy to distinguish them from other, nearly related genera by the closeness of the anterior central eyes and their inconsiderable distance from the deeply emarginated edge of the almost naked clypeus, together with the peculiar colour (black, abdomen more or less metallic, legs generally yellow or spotted with yellow). The eyes of the 3rd row are usually, but not always, more widely separated from each other than from the margin of the cephalothorax. The claws are of the usual form, nearly similar to those of *Epiblemum*, but the teeth are less numerous on the inner claw. In *H. cupreus* I have counted 6 fine teeth upon the inner and 2 coarse ones on the outer claw (4th pair). OHLERT states the numbers to be 10 and 1. On the 1st and 3rd pair, according to him, the external claw is without teeth. The hairs of the claw-tuft dilate gradually outwards.

Gen. 5. BALLUS (C. KOCH). 1850.

Deriv.: *βάλλω*, throw.

Syn.: 1834. Salticus REUSS, Zool. Misc., Arachn., (*ad part.:*) p. 273 (279).
1837. Euophrys C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 33 (*ad partem*).
1846. Marpessa [Marpissa] ID., Die Arachn., XIII, (*ad part.:*) p. 53.
1850. Attus: sub-gen. Ballus ID., Uebers. d. Arachn.-Syst., 5, p. 68.
1861. „ WESTR., Aran. Suec., p. 543 (*ad partem*).
1861. Salticus BLACKW., Spid. of Gr. Brit., I, p. 47 (*ad partem*).
1864. Attus [Atta]: sub-gen. *id.:* "groupe" Ballus [Balla], et sub-gen. Dendryphantes SIM., H. N. d. Araignées, p. 310 (*ad partem*).
1868. „ ID., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 14 (24) (*ad partem*).

Type: *Ballus heterophthalmus* (REUSS).

To this genus we refer not only the species proposed as its type, but also *Attus depressus* WALCK. (*Salticus brevipes* HAHN), which C. KOCH refers to *Marpessa*, and *Salticus obscurus* BLACKW., which is probably nothing else than the male of *Ballus depressus*.

The claws are, at least in *B. depressus*, small, slightly sinuated, of ordinary form: on the 4th pair I have counted about 15 teeth on the inner and about 5 on the outer claw; the outer claw of the 1st pair is destitute of teeth, the inner has about 10 teeth. The hairs of the claw-tuft are dilated at the extremity.

Gen. 6. MARPESSA (C. Koch). 1846.

Deriv.: undoubtedly *Μάρπησσα*, a mythol. prop. name; the word ought therefore to be written *Marpessa*, not *Marpissa*.

Syn.: 1837. Dendryphantes C. Koch, Uebers. d. Arachn.-Syst., 1, p. 31 (*ad partem*).
†1846. Icelus id., Die Arachn., XIII, (*saltem ad part.:*) p. 174.
1846. Marpessa [Marpissa] id., ibid., p. 56 *et sequ.*
1850. „ „ id., Uebers. d. Arachn.-Syst., 5, p. 47. } (*ad max. part.*).
1861. Attus Westr., Aran. Suec., p. 543 (*ad partem*).
1861. Salticus Blackw., Spid. of Gr. Brit., I, p. 47 (*ad partem*).
1864. Attus [Atta]: sub-gen. Dendryphantes Sim., H. N. d. Araignées, p. 310 (*ad partem*).
1864. Cyrtonota: sub-gen. Phidippus [Phidippia]: "groupe" Plexippus [Plexippa] id., ibid., p. 324 (*ad partem*).
1868. Marpessa [Marpissus] id., Monogr. d. espèces europ. de la fam. Attides, p. 6 (16), 7 (17).
1868. Attus id., ibid., p. 6 (16), 196 (692) (*ad partem*).
1868. Menemerus id., ibid., p. 6 (16), 196 (692) (*ad partem*).

Type: *Marpessa muscosa* (Clerck).

The lamina of the male's clava palpalis is not in all the spiders that we assign to this genus "*élargi en palette*," as in the typical species, which feature Simon however takes as characteristic of the genus. As we have above defined it, it includes among the Attoidæ with which I am acquainted, not only *M. muscosa*, *M. radiata* (Grube) and *M. hamata* C. Koch [1]), but also *Salticus pulchellus* Hahn, *Menemerus falsificus* Sim. and *Attus Lucasii* Sim., which last-mentioned two species, together with several other European Attoidæ, Simon himself had the kindness to send me. In its general appearance this genus occupies a place between *Epiblemum* and *Menemerus*. *M. pulchella* (Hahn) seems to form a transition to the former genus. Concerning *Icelus* C. Koch see p. 206. — The claws are somewhat shorter and stronger than in most other *Attoidæ*, at least in *M. muscosa*, in which species I have counted about 15 fine teeth on the inner, and from 3 to 6 on the outer claw.

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1) *Icelus notabilis* C. Koch is the male to his *Marpessa hamata;* both are stated to be from Naples. I have myself captured them in Rome. Simon has obligingly sent me both ♂ and ♀ under the name of *Attus striatus* Walck. (*Attus striatus* (Clerck) is quite another spider). *Marpessa hamata* Sim. is not identical with C. Koch's spider of that name.

Gen. 7. MENEMERUS (SIMON). 1868.

Deriv.: *μήνη*, moon; *μήρος*, thigh.

Syn.: 1829. Salticus HAHN, Monogr. d. Spinn., 5 (*ad part.:*) Tab. 3, fig. *B.*
1868. Menemerus SIM., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 196 (692) (*ad partem*).
1868. Attus ID., ibid., p. 6 (16), 14 (24) (*ad partem*).

Type: *Menemerus semi-limbatus* (HAHN).

Of the typical species (= *M. vigoratus* (C. KOCH) SIM.) I have taken several specimens at Naples (whence also HAHN'S specimen came), at Rome and at Nice. As the characteristic feature of the genus *Menemerus*, which distinguishes it from nearly related genera, SIMON states that the pars femoralis of the male's palpus is "*inerme et renflée en massue*". But that character does not apply to all the species, which, according to my definition of the genus, it comprehends, and of the species again, which SIMON reckons to *Menemerus*, I refer e. g. *M. falsificus* SIM. to *Marpessa*. In general appearance *Menemerus* closely resembles *Marpessa:* in cases of doubt however *Menemerus* may be recognized by the distance between the two eyes of the 3rd series being somewhat *less* than that between them and the margin of the cephalothorax, which is *not* the case in *Marpessa*. The claws in this genus are quite of the common form, but little sinuated; in the typical species I have found the outer claw without teeth both on the 1st pair, where the inner claw has about 10, and on the 4th pair, where it has about 15 fine teeth.

Gen. 8. DENDRYPHANTES (C. KOCH). 1837.

Deriv.: *δένδρον*, tree; *ὑφάντης*, weaver.

Syn.: 1837. Dendryphantes C. KOCH, Uebers. d. Arachn.-Syst., 1, p. 31 (*ad partem*).
1850. „ ID., ibid., 5, p. 60 (*saltem ad partem*).
1861. Attus WESTR., Aran. Suec., p. 543 (*ad partem*).
1864. „ [Atta]: sub-gen. Dendryphantes SIM., H. N. d. Araignées, p. 310 (*ad partem*).
1867. Dendryphantes OHL., Preuss. Spinn., p. 149, 156.
1868. Attus SIM., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 14 (24) (*ad partem*).

Type: *Dendryphantes hastatus* (CLERCK).

In his Monogr. d. espèces Europ. de la fam. d. Attides, p. 6 (16), SIMON mentions as the the characteristic of his *Dendryphantes:* "*digital* (bulbus ge-

nitalis) *à découvert sous la jambe"* (pars tibialis), as distinguishing it from *Attus*, *Marpessa*, *Yllenus* and others, which have the *"digital enveloppé en dessus par le tarse"* (lamina bulbi or pars tarsalis). The species of Simon's *Dendryphantes* known to me (among which I have however never met with the fullgrown ♂), namely *D. gesticulator* Sim. and *D. dorsatus* C. Koch [1]), belong to *Attus* according to our definition of that genus. Ohlert had already previously to Simon defined the genus *Dendryphantes* so that *D. hastatus* must be considered as its type, and this determination, which we adopt, thus has the right of priority in preference to that which Simon has made for the genus.

The claws are of the ordinary form, little sinuated, with numerous teeth on the inner claw. In *D. hastatus* on the 1st pair of legs I have counted above 20 close-set, very fine comb-teeth, but only 4 coarse and distant teeth on the outer claw. In another specimen the inner claw of the 4th pair had about 18, the outer about 7 teeth. The hairs of the claw-tufts are slightly dilated at the extreme apex.

Gen. 9. EUOPHRYS (C. Koch). 1835.

Deriv.: εὖ, well; ὀφρύς, eye-brow.

Syn.: 1834. Euophrys C. Koch, *in* Herr.-Schæff., Deutschl. Ins., 123, (*ad part.:*) 7, 8.
1837. „ id., Uebers. d. Arachn.-Syst., 1, p. 33 (*ad partem*).

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1) In specimens, which I look upon as *young* males of this species, not only is the short tibial joint of the palpus, but also its long tarsal joint enlarged and broader than the preceding joints; the inferior and exterior part of the tibial joint is swelled, but shows no separate bulbus — all just as in the figures of *D. bilineatus* (Walck.), which Simon has given loc. cit., Pl. II (VI), fig. 13*a*, and which therefore appear to me to represent the palpus of a *not yet fully developed* male. In ♂ ad., according to Simon, the tarsal joint is alike in both sexes, small and cylindrical, only a little longer in the male, whose *tibial* joint is on the underside incrassated and hollowed out, and *contains the bulbus genitalis* (?). Such a relation would indeed, as Simon rightly observes, distinguish these spiders from the other species of the family; it would even separate their from *all* other spiders, for, as far as we know, the bulbus genitalis in all other cases belongs to the *tarsal* and not to the tibial joint. — Also in the younger males of some other Attoidæ, e. g. *Menemerus semilimbatus* or *vigoratus*, the palpus has a form like that in the above described species of *Dendryphantes* Sim.: the tibial joint is very short and only indistinctly separated from the long palpal joint: both these joints are broader than the preceding, and the tibial joint incrassated on the underside. I suspect that the bulbus genitalis is here formed within the *two* last joints of the palpus, though, when freed at the last change of the integument, it adheres to the tarsal joint.

1848. Attus ID., Die Arachn., XIV, (*ad part.:*) p. 44—49.
1850. „ ID., Uebers. d. Arachn.-Syst., 5, p. 68 (*excl.* sub-gen. *Ballo*).
1861. „ WESTR., Aran. Suec., p. 543 (*ad partem*).
1861. Salticus BLACKW., Spid. of Gr. Brit., I, p. 47 (*ad partem*).
1864. Attus [Atta]: "groupe" *id.* SIM., H. N. d. Araignées, p. 310.
1868. „ ID., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 14 (24) (*ad partem*).

Type: *Euophrys frontalis* (WALCK.).

When C. KOCH in 1833, in HERR.-SCHÆFF., Deutschl. Ins., N:o 119, for the first time mentioned an *Attus*, it was *A. terebratus* (CLERCK) that he described under that name. In the same work he, in 1834, described, under the new generic name *Euophrys*, two species, which he called *E. festiva* and *E. frontalis*. Somewhat later (1837), in Uebers. d. Arachn.-Syst., 1, he endeavoured to give the characteristics which distinguish *Attus* and *Euophrys:* he there registered, as belonging to *Attus*, *A. arcuatus* (CLERCK), as also *A. terebratus* (ID.), the position of the eyes and the male's palpi of which he figured, and which species therefore ought to be considered as the type of the genus. To *Euophrys* he refers several species, which are very nearly related to *A. terebratus* and *arcuatus*, but moreover also e. g. *E. petrensis*, which is more nearly related to *E. frontalis*. This latter species is now not mentioned, neither is *E. festiva*. Several years later, in Die Arachniden XIII and XIV (1846, 1848), we find that KOCH has completely altered his view of the genera *Attus* and *Euophrys: A. terebratus* and *A. arcuatus* are now referred to *Euophrys*, whereas *E. frontalis* and *E. petrensis* are aggregated to *Attus*. So also lastly in Uebers. d. Arachn.-Syst., 5 (1850). From what has now been said it is evident, that KOCH at different times has defined the genera *Attus* and *Euophrys* in totally different and irreconcileable ways. As he in 1837, when WALCKENAER'S great genus *Attus* was broken up by him, defined the genus, for which he preserved WALCKENAER'S name, so, that *A. terebratus* was to be the type for *Attus* (WALCK.) KOCH, it is clear, that the name *Euophrys*, if not to be absolutely cashiered, must be applied to some one or more of the species described under that name, which can *not* be referred to the same genus as *A. terebratus*, and preferentially to that species among them, which was *first* described under the name *Euophrys:* accordingly to *E. frontalis*. (The contemporaneously described *E. festiva* = *E. striata* KOCH [non CLERCK] is an *Attus* (WALCK.) NOB.). — *Euophrys* (KOCH) NOB. must accordingly be = sub-gen. *Attus* KOCH 1850.

Like *Attus*, the species of *Euophrys* have a high cephalothorax, but as the back of the cephalothorax is as broad as its base, and the hinder-

most eyes, are situated near the side-edges of the back, the distance between them is greater or at least not less than that between the eye and the border of the cephalothorax (which does not gradually diminish in breadth towards the front). The eye-area occupies a larger proportion of the cephalothorax, than in *Attus:* in *E. reticulata* (Blackw.) = *E. frontalis* ♀ (Westr.) the hindermost eyes are situated actually almost in the middle of the cephalothorax. *E. petrensis* C. Koch is the only species of this genus known to me, in which the design of the abdomen formed by the distribution of its colours depends on a tolerably thick covering of hair; ordinarily the hair is thin and the markings occasioned by the pigment situated in the skin itself. — The claws are long and very slender, with few or no teeth; in *E. frontalis* I have observed on the inner claw of the 1st pair two very small teeth. The hairs of the claw-tuft are sensibly dilated at the extremity.

Gen. 10. PHILÆUS n.

Deriv.: *Φιλαῖος*, proper name.

Syn.: 1837. Calliethera C. Koch, Uebers. d. Arachn.-Syst., 1, p. 30 (*ad partem*).
†1846. Philia id., Die Arachn., XIII, p. 54, 56.
1850. „ id., Uebers. d. Arachn.-Syst., 5, p. 45.
1861. Attus Westr., Aran. Suec., p. 543 (*ad partem*).
1864. Cyrtonota: sub-gen. Philia Sim., H. N. d. Araignées, p. 324, 327 (*saltem ad partem*).
1868. Attus id., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 14 (24) (*ad partem*).

Type: *Philæus sanguinolentus* (Linn.).

I am not sure that the distinctive features of this genus set forth by me are quite trustworthy, for I have met with the *male* only of one of its species, *Ph. sanguinolentus*. The genus however seems to be perfectly well distinguished from *Attus* and other nearly related forms even by its entire general appearance. — As the name *Philia*, according to Agassiz' Nomencl. Zool., was already in 1842 appropriated by Schiödte to a genus of Hemiptera, I could not preserve it, but have replaced it with the somewhat similar name *Philæus*.

In *Ph. sanguinolentus* the inner claw of the 1st pair of legs has about 20 close-set teeth gradually and slightly increasing in length, and the outer claw about 6 coarse, sparse teeth. The hairs of the claw-tuft are long, slightly dilated at the extremity. On the 4th pair of legs the number of teeth is respectively about 13 and 5.

Gen. 11. ATTUS (WALCK.). 1805.

Deriv.: ἄττω = ἀΐσσω, move with quick, sudden motion.

Syn.: 1805. Attus WALCK., Tabl. d. Aran., p. 22 (*ad partem*).
1833. „ C. KOCH, *in* HERR.-SCHÆFF., Deutschl. Ins., 119, 3, 4.
1837. „ ID., Uebers. d. Arachn.-Syst., 1, p. 32.
1837. Euophrys ID., ibid., p. 33 (*ad partem*).
1850. „ ID., ibid., 5, p. 60 (*ad max. part.*).
1861. Attus WESTR., Aran. Suec., p. 543 (*ad partem*).
1861. Salticus BLACKW., Spid. of Gr. Brit., 1, p. 47 (*ad partem*).
1864. Attus [Atta]: SIM., H. N. d. Araignées, p. 324 (*ad partem*).
1868. „ „ ID., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 14 (24) (*ad partem*).
1868. Dendryphantes ID., ibid., p. 6 (16), 168 (634) (*saltem ad partem*).

Type: *Attus terebratus* (CLERCK).

When C. KOCH in 1837 (loc. cit.) divided the old genus *Attus* WALCK. or *Salticus* LATR. into a number of smaller genera, he preserved the Walckenaerian name for a generic group that includes *A. terebratus* (CLERCK) and *A. arcuatus* (ID.). Since several species, which KOCH in the same work referred to *Euophrys*, ought also to be reckoned to the same genus, he some years afterwards transferred that appellation to the genus *Attus*, and gave the name of *Attus* to a portion of the species, which he had formerly called *Euophrys*. Such alterations of names no one of course can have the right of making, and we have accordingly restored the generic name *Attus* to the spiders, which KOCH *first* under that name detached from WALCKENAER'S *Attus*. Of *Euophrys* we have already treated p. 216.

The genus *Attus*, as we have above defined it, includes the great majority of European Attoidæ. Perhaps one or more well defined genera might with advantage still be detached from it; I have not however, possibly for want of sufficient material for examination, been able to do so. As I define this genus, it corresponds to KOCH'S *Euophrys* 1850, with the exclusion of the sub-genera *Dia* and *Parthenia*, which I considered might very well be united into one separate genus: *Ælurops*.

The armature of the claws in the genus *Attus* is tolerably various. Generally speaking the teeth of the inner claw are close-set and far more numerous than those of the outer claw; but occasionally, e. g. on the 4th pair of legs in *A. crucifer*, the number is small and about equal on both claws. Sometimes the teeth gradually and uniformly increase in length towards the point of the claw, sometimes they are of almost equal length

throughout; their length as compared with their breadth is also very different in different species. In many species the outer claw is toothless, or has but a couple of coarse teeth far apart, while the inner claw is finely and closely pectinated. The hairs of the claw-tufts are usually gradually dilated towards the extremity.

Gen. 12. ÆLUROPS n.

Deriv.: *αἴλουρος*, cat; *ὤψ*, face.

Syn.: 1850. Euophrys: sub-gen. † Dia et † Parthenia C. Koch, Uebers. d. Arachn.-Syst., 5, p. 60 (*saltem ad part.*).
1861. Attus Westr., Aran. Suec., p. 453 (*ad partem*).
1864. „ [Atta]: sub-gen. *id.:* "groupes" Dia et Parthenia Sim., H. N. d. Araignées, p. 310, 312, 313 (*saltem ad part.*).
1868. „ Sim., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16, 14 (24) (*ad partem*).

Type: *Ælurops v-insignitus* (Clerck).

To this genus, besides the typical species, I refer e. g. also *Salticus fasciatus* Hahn, both remarkable for the projecting edge of the forehead, which conceals the central eyes of the first row, when the cephalothorax is looked at perpendicularly from above. As the names *Dia* and *Parthenia* were both already appropriated before Koch applied them to the two subgenera, that we here have united into one genus (vid. 36, 37), I have been obliged to form a new generic name for them. — The species of this and the genus immediately following appear to me to be the most highly developed European forms in the whole family. They leap with extraordinary vigour. Their claws are long and sinuated: in *Æl. v-insignitus* ♀ the claws of the 4th pair of legs have, much in front of their middle, about 3 or 4 large, sparse teeth, ♂ about 6. On the 1st pair, the claws of which are much shorter and more uniformly curved, the teeth are still fewer in number, at least in ♂. The claw-tuft is continued as a scopula beneath a part of the tarsus of the 1st pair; and the hairs of it are, nearer the extremity, gradually dilated in the form of tongues.

Gen. 13. YLLENUS (Sim.). 1868.

Deriv.: From some proper name.

Syn.: 1868. Yllenus Sim., Monogr. d. espèces europ. de la fam. d. Attides, p. 6 (16), 166 (632).

Type: *Yllenus arenarius* Sim. [1]).

1) For this species Simon cites "Menge, Schrift. d. Naturforsch. Gesellsch. in Danzig, 1866"; but I have not found it described either there or any where else

Of this genus, which, according to SIMON, is distinguished by the lamina of the palpal clava being "*relevé en crête*", I have seen only one individual, a male of the typical species, which SIMON had the goodness to send me. That spider in its entire appearance agrees most accurately with *Ælurops* v-*insignitus*, but it differs not only by the peculiar structure of the palpi, but also by the far greater length of the posterior legs, especially the tibiæ. The claws also are particularly strongly developed: they are very long, even longer than those of *Ælurops*, slender and sinuated, especially on the hindermost legs, where they have in front of the middle a row of about 12 very long, closely set comb-teeth. The claws of the 1st pair, whose tarsi, like those of the 2nd pair, are on the underside clothed with hairs dilated at the apex, are much shorter than those of the posterior pairs of legs, but still long, slightly and uniformly curved, with about as many teeth of the same form as on the following pairs, but here the row of teeth commences nearer to the base of the claw. The claws, especially on the hinder legs, are so large and visible, that both they and their pectination may be observed with a good single lens. The hairs of the claw-tuft are dilated near the extremity in the posterior legs; in the 1st pair the dilatation is more gradual.

Fossil spiders have in the preceding pages not be taken into account, simply because I am not by actual inspection acquainted with any, and I therefore was not in a condition to form from observations of my own an opinion of the relations between them and now existing forms. Some short notices on this subject, with special reference to those extinct *genera*, which (as far as I am aware) up to the present time have been published, may however be of interest to some few arachnologists, and I offer them the more readily, because I have not found, that in any work on the classification of spiders proper attention has been paid to the fossil forms.

These animals, as the usually soft and perishable character of their integuments would lead us to expect, have left but few traces of their exist-

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previous to SIMON's description loc. cit. In KOCH and BERENDT, Die im Bernstein befindl. Crust., Myriapod., Arachn. etc., p. 93, MENGE has, it is true, mentioned a Prussian spider under the name of *Phidippus arenarius*, which *perhaps* is the same as *Yllenus arenarius* SIM., but it is not characterized, and accordingly I could not refer to MENGE as authority for the name.

ence in the fossiliferous deposits, and it is only in *Amber* that we meet with them numerously represented. The oldest known spiders belong to the *Coal formation*, in the strata of which a few specimens have been found in Bohemia [1]) and Silesia [2]), and probably also in England [3]). Only one species belonging to that period is in sufficiently good preservation to be tolerably well characterized, viz. the *Protolycosa anthracophila* described by Römer, which was discovered in a piece of argillaceous slate at Kattowitz in Upper Silesia. It forms the type of the genus

Protolycosa Röm. 1866 [4]). This spider, which is about 5 lines long, is by Römer placed in the vicinity of *Lycosa;* but this appears to me not to be right. The eyes and spinners, if indeed these organs ever existed, have unfortunately perished; nor is it possible to form any clear idea of the appearance of the mandibles, and it is therefore impossible to determine with absolute certainty the systematic position of the animal; nevertheless its general appearance and especially its *extremely coarse and strong legs and palpi* seem to me unequivocally to mark this genus as belonging to the *Territelariæ*, and among these it is that wonderful East Indian genus *Liphistius* Schiödte, that *Protolycosa* most nearly resembles. Not only do these two genera agree in the unusual relative length of the legs — in *Liphistius* the proportion of the different pairs is 4, 2, 3, 1, in *Protolycosa* 4, $\widetilde{2, 3}$, 1, and thus in both *the 1st pair is the shortest of all;* — but in *Protolycosa* also the dorsal integument of the abdomen is of *a horny substance*, and, according to Römer's figures, *divided into transversal segments*, each furnished with a cross-row of tubercles, just as is the case with *Liphistius* Schiödte [5]). I conceive then that *Protolycosa* ought to be assigned

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1) "*Palaranea borassifolia* Frič" (!!), Vid. Feistmantel, K., Die Steinkohlenbecken in der Umgebung von Radnic, p. 66, *in* Archiv f. d. naturwissensch. Landesdurchforschung von Böhmen, Bd I (Prag 1869); Conf. also *Reuss, A. E., Kurze Uebersicht der Geognostischen Verhältnisse Böhmens, p. 59 (Prag 1854), and Römer, F., Protolycosa anthracophila, eine fossile Spinne aus dem Steinkohlengebirge Oberschlesiens, *in* Leonhard and Bronn (Geinitz), Neues Jahrbuch für Mineralogie, Geologie und Palæontologie, Jahrg. 1866, Hft 2, p. 143. (Stuttgard 1866).

2) Römer, loc. cit., p. 136—143, Taf. III, fig. 1—3.

3) Conf. *Lhwyd (Luidius), E., Lithophylacii Britannici Ichnographia etc., Tab. IV (London 1690); *Parkinson, J., The Organic Remains of a former world etc., III, Pl. 17, fig. 3—6 (London 1811); as also a citation from Lhwyd's Epist. III, in Buckland's Geolog. and Miner., I, p. 406 (of Ed. 2).

4) Deriv.: πρῶτος, first, and *Lycosa*.

5) Conf. Schiödte, Om en afvigende Slægt af Spindlernes Orden, p. 6—7.

to the family *Liphistioidæ* NOB. (vid. p. 43), unless it be preferred to create a new family especially for it, a proceeding, which perhaps *the unusually short femoral joints of the palpi* (see RÖMER'S figures), as also *two backward-directed spines in the midst of each side of the abdomen* might justify.

Phalangites MÜNST. 1839 = *Palpipes* ROTH 1851. In the lithographic limestone of Solenhofen in Bavaria, belonging to the *Jurassic formation*, MÜNSTER detected the impression of a previously unknown animal, which, on account of its resemblance to a *Phalangium*, he called *Phalangites priscus* [1]). ROTH [2]), who had at his disposal several specimens, which he divides into two species, thought he could clearly perceive the contour of an abdomen separated from the cephalothorax, and observed two long, jointed and cross-ringed organs, attached to the abdomen and united at the base, which he considered to be *spinners*, and he accordingly aggregated these animals to the Order of Spiders. He named the genus *Palpipes*, and considered that it ought to be referred to the *Mygalides (Territelariæ);* he characterizes it as follows: "Cephalothorax ab abdomine discretus. Palpi maximi, in pedes mutati. Pedum paria longitudine diversa. Tarsi monomeri, ungui valido simplici terminati. Papillæ textoriæ duæ magnæ exsertæ, vel aliud quoddam organum bipartitum, cornutum, articulatum, in medio ventre situm, cornubus antice vergentibus." — The figure given by ROTH of *P. priscus* really gives the impression of a spider with uncommonly long and thin legs and very long, leg-like palpi. Examples of still existing spiders with but one tarsal claw are not wanting (*Sparassus abnormis* BLACKW., *Attus (Diolenius) phrynoides* WALCK.: See above pp. 170 and 203); very long *cross-ringed spinners* occur also in another fossil spider, *Gerdia myura* MENGE, of which we shall speak farther on. Their abnormal position and direction in *Phalangites* may be a consequence of the animal's having been crushed and the relative position of the parts thus changed. In the mean time it is maintained by v. MEYER [3]), that what ROTH looked upon as the contour of

1) MÜNSTER, G., Graf zu, Phalangites priscus, *in* EJUSD. Beiträge zur Petrefakten-kunde, Hft 1, p. 84, Taf. VIII, fig. 3, 4. (Bayreuth 1839).

2) ROTH, J., Ueber fossile Spinnen des lithografischen Schiefers, *in* Gelehrte Anzeigen, Herausgegeben von Mitgliedern d. K. Bayer. Akademie der Wissenschaften, Bd XXXII, p. 164—167. (München 1851).

3) MEYER, HERM. v., Zu Palpipes priscus aus dem lithographischen Schiefer in Bayern, *in* EJUSD. Palæontographica, Beiträge zur Naturgeschichte der Vorwelt, Bd X, Lief. 6, p. 299—304, Taf. L, fig. 1—4 (Cassel 1863). — See also a letter from v. MEYER to BRONN, *in* LEONHARD and BRONN'S Neues Jahrbuch f. Min., Geol. etc., 1861, p. 561. BRONN there surmises that *Phalangites* should be compared with the *Pantopoda (Pycnogonoidea)*.

an abdomen, is the impression of a 5th pair of short and slender legs, and that accordingly the animal does not belong to the *Arachnoidea*, neither to the *Opiliones*, nor to the *Araneæ*, but to the *Crustacea*. This view appears to me to have but little probability, as giving no satisfactory explanation of the organs observed in many specimens, and by Roth supposed to be *spinners*. To consider them with v. Meyer as *antennæ*, would seem dangerous, as they are always found on or near the abdomen (Conf. Roth, loc. cit.). That the contour of the abdomen gives the impression of a pair of jointed and converging extremities, might be explained by considering the abdomen itself to have been segmentated. At all events the animals in question are so peculiar, that they not only form a separate family, ***Phalangitoidæ***, but even a group of a higher order, which may be called ***FILIGRADÆ;*** if, as I suppose, this group belong to the order of Spiders, it ought, as a separate *sub-order*, characterized especially by *single-jointed tarsi armed with but one coarse claw*, to take a place below both *Scytodoidæ* and *Filistatoidæ*, uniting them with the *Opiliones*.

Numerous representatives of the order of Spiders from the *tertiary* formations are already known. They appear all to belong to the *miocene*, or (the amber spiders) perhaps to a still older period. From the fresh-water formations near Aix in Provence Marcel de Serres [1]) has produced a *"Tegenaria"*, as also a *"Phalangium"* said to resemble *Phalangium phaleratum* Panzer, i. e. *Asagena phalerata*. I imagine it to be this last-named species, that is figured in Buckland's Geology and Mineralogy [2]), and for which the same place of discovery is alleged; it closely resembles a *Theridium*. I propose to call it *Th. Bucklandii*. In the sulphur-impregnated tertiary strata of Radoboj in Croatia several spiders are also said to be found [3]). Von Heyden describes the remains of two spiders, discovered in the Brown-coal strata of the Siebengebirge on the Rhine, which he calls *Gea Krantzii* [4]) and *Argyroneta antiqua* [5]). The first seems to me to be a species of *Epeira;* the second is certainly no *Argyroneta*, but represents, if the figure can be relied upon, a peculiar genus, which may be called

1) Notes géologiques sur la Provence, *in* Actes de la Société Linnéenne de Bordeaux, T. XIII, p. 34. (Bordeaux 1844).

2) Buckland, W., Geology and Mineralogy considered with reference to Natural Theology (2nd Edit.) II, p. 79, Pl. 46″, fig. 12. (London 1837).

3) Quenstedt, F. A., Handbuch d. Petrefaktenkunde (2nd Ed.), p. 268. (Tübingen 1867). I do not know whence Quenstedt has taken this statement.

4) Heyden, C. v., Fossile Insekten aus der Rheinischen Braunkohle (Meyer's Palæontographica, VIII, Lief. I, p. 2, Taf. II, fig. 11. (1859).

5) Ibid., p. 1, Taf. 2, fig. 12.

Elvina N.[1]). This genus appears to be distinguished by *the palpi being evidently thicker than the legs.* Its nearer relationships it is not possible from v. HEYDEN'S description and figure to determine: probably it may belong to the *Tubitelariæ*, and *possibly* to the *Agalenoidæ (Argyronetinæ).*

In the also miocene fresh-water strata of Œningen (near the Lake of Constance in Switzerland), OSWALD HEER [2]) has met with no less than 28 species of spiders, which it is however difficult to affiliate to any certain genera, as the position of the eyes etc. cannot be distinguished. HEER thinks they may be referred to 10 genera, which, with one exception, are still existing. These spiders are not described, but eleven species have been figured and named: of these one is assigned to *Epeira*, 3 to *Theridium*, 1 to *Argyroneta* [*-necta*], 1 to *Clubiona*, 1 to *Micaria* [*Macaria*] and 3 to "*Thomisus*". But scarcely one of these species appears to be in so good a state of preservation that the identifications can be considered as fully certain. *Theridium maculipes* HEER (loc. cit., p. 356, fig. 219) is more like an *Asagena* than a *Theridium*. *Thomisus œningensis* HEER (fig. 215) would seem to be a *Xysticus*. *Clubiona Eseri* HEER, which is stated to be very like *Cl. lanata* KOCH et BER. (of which more hereafter) is assuredly no *Clubiona*, nor is *Argyroneta longipes* HEER any *Argyroneta*. These two species seem to form each its own separate genus. For one species HEER forms, as we have above stated, a new genus:

Schellenbergia HEER 1865 [3]). Of his *S. rotundata* (fig. 211) HEER says, that it is distinguished by "the short palpi with a large, globular terminal joint, short and almost globular abdomen, pressed close to the breast, and provided with transversal impressions. The third pair of legs is the shortest, all the others being of nearly equal length. The thighs are furnished with a longitudinal rib." The animal (a ♂) belongs without doubt to the *Retitelariæ*, and appears to me to stand between *Episinus* and *Ero*.

In the fossil vegetable resin known under the name of *amber*, which is met with in various Brown-coal strata, and is copiously thrown by the waves on the southern coasts of the Baltic, especially the coast of Prussia and the Kurische Haaff, and which also belongs to the tertiary ("oligocene") period, numerous spiders are found, and are, in general, well preserved. The principal work on the subject of these Amber Spiders is that of KOCH and BERENDT: Die im Bernstein befindtlichen Crustaceen, Myriapoden, Arachniden

1) *Elvina*, mythol. proper name.
2) Die Urwelt der Schweitz, p. 355—358. (Zürich 1865).
3) J. R. SCHELLENBERG, a Swiss entomologist.

und Apteren der Vorwelt [1]), which, after the death of the authors, was published by A. Menge, and provided by him with many important additions and corrections. The number of Spider-species found in Amber appears, according to Koch's and Menge's works, to amount to about 130; of these nearly 100 are fully described and figured, for the most part in Koch and Berendt's above-named work, two others in a lately published paper of Menge [2]). Of several of the remaining species Menge has, partly in Koch and Berendt's work, partly in a separate memoir [3]), given more or less detailed descriptive notices. As we are now about to give a short account of the extinct genera made known by Koch and Menge in the above-mentioned works, it will probably be best, in consequence of their somewhat considerable number, to treat each family separately, in the order in which they have been classed in the foregoing pages. It should however be remarked that the characteristics of many of these genera are by the said authors only touched upon in a few words and cursorily, so that it is not always possible to form a sure judgment of their systematic position.

a. *Epeiroidæ.* To this family we refer the following genera:

Græa n. [4]) = *Gea* (Koch et Ber.) 1854. — The fossil species, which Koch and Menge reckon to *Gea*, differ from *Epeira* by having the *anterior* central eyes much larger than the posterior, and sitting close together on small protuberances (vid. Koch and Berendt, p. 22—24; Menge, Lebenszeichen, p. 6). This is however by no means the case in the now existing, East Indian species of *Gea*, *G. spinipes* C. Koch; for in that species the *posterior* central eyes, which are placed uncommonly far backward, are larger than the anterior, according to Koch himself [5]). The exstinct spiders in question cannot therefore be affiliated to *Gea* C. Koch 1843, but form an independent genus, for which we propose the name *Græa*, with *G. epeiroidea* (K. et B.) as the type.

Antopia Menge 1854 [6]). This genus is distinguished by its conically prominent head; the central eyes form a trapezoid, and are larger

1) Also with the title: Berendt, G. C., Die im Bernstein befindlichen Organischen Reste der Vorwelt, Bd I, Abtheil. II. Berlin 1854. — In Bd I, Abth. I of this work (Berlin 1845) there is a list of the spiders described by C. Koch in Bd I, Abtheil. II.

2) Ueber einen Scorpion und zwei Spinnen im Bernstein (Schriften der Naturforschenden Gesellschaft in Danzig, Bd II, Hft 2, 1869).

3) Lebenszeichen vorweltlicher, im Bernstein eingeschlossener Thiere. Danzig [1856].

4) *Γραῖαι, αἱ*, mythol. name (*γραῖα*, old woman).

5) Die Arachn., X, p. 101, Tab. CCCLII, fig. 823. (1843).

6) *ἀντώπιος*, looking straight forward.

and placed higher up than the lateral eyes (vid. KOCH et BER., p. 43; Lebenszeich., p. 7). — Type: *A. punctulata* (K. et B.), by KOCH described as a *Mizalia.*

Siga MENGE 1854 [1]). Is said to be nearly related to *Zilla:* "The head is prominent, the posterior central eyes farther apart than the anterior, the palpi of the male provided with an involuted (zusammengerollten) flagellum". — *S. crinita* MENGE (KOCH and BER., p. 27).

Androgeus K. et B. 1854 [2]). The head is triangularly or conically pointed; the eyes are arranged in two longitudinal rows diverging from the front backwards, and thus occupy a triangular area, the point of which is formed by the anterior central eyes; the hindermost eyes are placed far backwards on the back of the cephalothorax, much as in *Hyptiotes* and *Poltys*, which latter genus also in the form of its head resembles *Androgeus.* KOCH united these three genera in his family *Mithraides (Mithracidæ). Androgeus* probably belongs to our *Uloborinæ*, and assuredly not to the *Laterigradæ*, with which MENGE thinks it ought to be classed. — Type: *A. triqueter* K. et B. — Conf. KOCH and BER., p. 27—29; Lebenszeich., p. 9.

Of still existing genera, *Epeira* and *Zilla* are said to be represented; the species of *Zilla* described in KOCH and BER. do not however belong to *Zilla*, as we have fixed the limits of that genus, and probably not even to the Epeiroidæ, but to the *Theridioidæ:* they are said by MENGE to resemble "*Meta tigrina*" (*Linyphia socialis* SUND.) in the position of the eyes and in the legs (vid. KOCH and BER., p. 27).

b. *Theridioidæ.* The following genera appear to belong to this family:

Flegia K. et B. 1854 [3]). Is nearly related to *Episinus*, according to MENGE, but the eyes are placed on a prominent elevation sloping behind. The cephalothorax is rounded, its pars cephalica small; the abdomen ovate, the legs long; the palpi of the male are very long, with a very large clava. The posterior central eyes are larger than the anterior. — Type: *F. longimana* K. et B. — Conf. KOCH and BER., p. 30.

Coryuitis MENGE 1854 [4]). Nearly allied with *Flegia;* it is distinguished "by its larger anterior central eyes, and by the male's still longer palpi, the fourth joint of which is slender at the base, incrassated in the

1) *Σιγή*, proper name.

2) *Ἀνδρόγεως, Androgeus*, proper name.

3) Deriv. to me unknown. (*Φλεγίας, Φλεγύα* and *Φλεγύας* are proper names; *φλεγεός*, burning, shining).

4) *κορύνη*, club.

form of a club at the extremity, with the clava itself almost spherical." — *C. spinosa* Menge. — Vid. Koch and Ber., p. 30.

Anandrus Menge 1856 [1]). Of this genus Menge only says that it is "nearly related to *Linyphia*, but the male's palpi and organs of copulation are very small." (Lebenszeich., p. 7).

Thyelia K. et B. 1854 [2]). In the position of the eyes *Thyelia* approximates to *Clubiona:* they are placed in two parallel or only slightly converging rows; the four posterior eyes, which are placed at about the same distance from each other, form an almost straight line, as do also the four anterior eyes; the central eyes form a trapezoid broader behind. — From most of the figures (as f. inst. that of the typical species) given in Koch and Ber., *Thyelia* appears to belong to the Theridioidæ, but other species, viz. *Th. marginata* (Pl. VI, fig. 45) and *Th. anomala* (Pl. V, fig. 39) more nearly resemble the *Agalenoidæ* (to which family the genus was referred by Koch), and probably do not belong to *Thyelia* (Conf. Menge in Koch et Ber., p. 56). — Menge says loc. cit. that *Thyelia* differs from its relations *Clubiona* and *Amaurobius* by a "narrower head and laterally projecting spines on the else fine-haired legs"; in Lebenszeich., p. 7, he classes it with the Theridioidæ on account of the short spinners and the armature of the legs. — Type: *Thyelia tristis* K. et B. — Conf. Koch and Ber., p. 50—56.

Clya K. et B. 1854 [3]). — Is considered by Koch to approximate to *Eucharia* (*Steatoda* nob.) in the form of the body, the legs and the palpi. The head is elevated above the rounded pars thoracica; the abdomen is short, very convex. The eyes of the posterior series are placed on a sharp prominent ridge curved backwards; the central eyes, which are of the same magnitude, form a square; the lateral eyes are nearer together and about half as large as the central eyes. — Type: *C. lugubris* K. et B. — Vid. Koch and Ber., p. 31.

As possibly belonging to the Theridioidæ, Menge mentions:

Dielucata Menge 1854 [4]). Nothing more is said of this genus, than that it has only *two* spinners, and two tracheal stigmata before the spinners. — *D. superba* Menge. (Koch and Ber., p. 94; Lebenszeich., p. 9).

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1) *α priv.*, and *ἀνήρ*, man, male (probably with reference to the small sexual organs of ♂).

2) Perhaps from *θυηλή*, victim.

3) Deriv. unknown.

4) *δίς*, twice; *ἠλακάτη*, distaff.

The following still existing genera are stated to have representatives in the Prussian amber: *Ero*, *Theridium*, *Erigone*, *Walckenaera [Micryphantes]*, *Euryopis [-us]* and *Linyphia.*

c. *Scytodoidæ.* Menge mentions (Lebenszeich., p. 9) a species of *Pholcus*, as also a new genus, perhaps belonging to this family:

Phalangopus Menge 1854 [1]), of which however it is only said, that it is related to *Pholcus*, with long, slender legs, but with the eyes placed otherwise. — *Ph. subtilis* Menge. Vid. Koch and Ber., p. 94; Lebenszeich., p. 9.

d. ***Mizalioidæ*** n. The curious genus *Mizalia*, which in Koch and Berendt is classed among the *Theridioidæ*, but which Menge (Lebenszeich., p. 8) refers to his *Clubionida* (= *Drassoidæ* + *Dysderoidæ* nob.), appears to me to form the type of a quite peculiar family, perhaps most related to the *Urocteoidæ* in the sub-order *Tubitelariæ.* The characters of this family may be seen from those of the only known genus:

Mizalia (K. et B.) 1854 [2]). The cephalothorax is in the form of a broad inverted heart; the pars cephalica, which has the same height as the slightly convex, broad pars thoracica, is drawn out in a kind of snout before the eyes. The eyes are about equal in magnitude and placed in two transversal rows on the superior side of the head: the anterior, shorter row is curved backwards, the posterior row is nearly straight. The legs are rather short and strong (as are also the palpi), their relative length 1, $\widetilde{2, 4}$, 3; the abdomen is short, ovate; the superior or posterior spinners are slender, conically pointed, the intermediate spinners cylindrical and *more than double as long as the inferior* (anterior), which are truncated, conical and thicker. — Type: *M. rostrata* K. et B. — Conf. Koch and Ber., p. 42—45.

e. *Hersilioidæ.* Besides an *Hersilia* (of which genus no species is known now to exist in Europe: Conf. p. 115), a new genus belonging to this family has been found in the Prussian amber:

Gerdia Menge 1869 [3]). This remarkable genus is nearly related to *Hersilia;* but the head is raised into a high vertical boss, and the legs are destitute of the long, third tarsal joint found in *Hersilia* (according to Menge the tarsi are only two-jointed). The very long three-jointed superior spinners are curved downwards towards their extremity; their long third joint

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1) φάλαγξ, joint; πούς, leg (or perhaps *Phalangium* and πούς).

2) Deriv. unknown to me. Probably a proper name.

3) "Γέρδια, *textrix*": Menge.

appears to be thickly annulated. — Type: *G. myura* Menge. — Conf. Menge, Ueber einen Scorp. u. zwei Spinn. im Bernstein, p. 8—9.

f. *Agalenoidæ.* The amber fauna contains several species of *Amaurobius (Cœlotes?)*, *Tegenaria* and *Agalena*, but probably not of *Textrix*, to which genus Koch had referred a couple of species. — Conf. Menge in Koch et Ber., p. 49, 50.

g. *Drassoidæ.* The following genera I place in this family:

Anatone Menge 1854 [1]). Of this genus Menge says (in Koch and Ber., p. 84) that the eyes are placed as in *Philodromus*, but the four anterior eyes are scarcely half as large as the four posterior. In Lebenszeich., p. 8, *Anatone* is said to differ from *Zora* only in having the posterior central and lateral eyes placed nearer together. One species, *A. spinipes* Menge is stated to stand very close to *Zora spinimana* Koch. Menge refers the genus to the *Lycosoidæ.*

Sosibius *[Sosybius]* K. et B. 1854 [2]). Is according to Menge (Lebenszeich., p. 8) so nearly related to *Clubiona*, as scarcely to be distinguishable from that genus. — The four anterior eyes are placed near the margin of the clypeus in an almost straight line; the posterior central eyes are very small, almost invisible; the anterior central eyes are somewhat smaller than the lateral eyes, which are about equally large. — Type: *S. minor* K. et B. Vid. Menge, in Koch and Ber., p. 70. — Koch, who believed that the eyes were arranged in quite another way, united this genus with *Eriodon* and *Selenops* (!) into a family, which he called *Eriodontidæ* (loc. cit., p. 69).

Erithus Menge 1854 [3]). The lateral and the anterior central eyes, which are all large, flat and close together, are arranged in a single row curved backwards, near the margin of the clypeus; the posterior central eyes are smaller and placed on the superior side of the head. Nothing more is said of this genus. — *E. applanatus* Menge (Koch and Ber., p. 69).

Heteromma Menge 1856 [4]). Is said to unite *Clubiona* and *Melanophora* with *Segestria.* Six large eyes are placed quite as in *Segestria;* behind them are two very small eyes (the posterior central eyes), the diameter of which is scarcely equal to $\frac{1}{3}$ of that of the anterior central eyes; to this is to be added the peculiarity, that the abdomen is short-petiolated. Menge Lebenszeich., p. 8. — *H. intersecta* Menge.

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1) "*ἀνάτονος, sursum tendens*": Menge (*ἀνά*, up; *τείνω*, stretch).

2) *Σωσίβιος*, proper name; *Sosybius* ought therefore to be written *Sosibius.*

3) *ἔριθος*, labourer; also, female weaver.

4) *ἕτερος*, another, dissimilar; *ὄμμα*, eye.

The following two genera, which are said to be related to *Clubiona* (Menge, Lebenszeich., p. 9), ought perhaps also to be classed among the Drassoidæ:

Spheconia Menge 1854 [1]): it is stated to have "a longshafted, fusiform abdomen and long spinners": — *S. brevipes* Menge; and

Idmonia Menge 1854 [2]): "the ellipsoïdally arched pars cephalica is separated from the in front heart-shaped pars thoracica; the eyes enclose an ellipsis." — *I. virginea* Menge. — Vid. Koch and Ber., p. 94.

Of the genera *Clubiona*, *Anyphæna*, *Micaria [Macaria]*, *Drassus*, *Melanophora* and *Gnaphosa [Pythonissa]* several species are described or mentioned in Koch and Ber. and Menge. Of the genus *Clubiona* however at least one of the species described by Koch, *C. lanata* (loc. cit., p. 67, Tab. VII, fig. 60) appears to me to belong to a quite different and peculiar genus.

h. *Dysderoidæ*. To this family belongs:

Therea K. et B. 1854 [3]). The pars cephalica is distinctly separated from and higher than the pars thoracica. Six eyes, all close together; the central eyes occupy a trapezoid somewhat broader in front, on each side of which is an obliquely placed lateral eye; the posterior central eyes are a little smaller than the others, which are equal in size. The genus is else nearly related to *Dysdera*. — Type: *Therea petiolata* K. et B. — Vid. Koch and Ber., p. 75.

Many other spiders belonging to this family, of the genera *Segestria* and *Dysdera* (10 species of the former genus!), have been found in amber.

i. *Theraphosoidæ*. To this family the following genus no doubt belongs:

Clostes Menge 1869 [4]). *C. priscus* Menge, the only known species, resembles, according to Menge, in the form of its body *Clotho* and *Cteniza*, in the spinners, *Mygale*. The eyes, which are placed on a quadrangular elevation of the head, in two rows, occupy a large, transversal area and are arranged in a manner very unusual in the Theraphosoidæ: the four central eyes form a square, enclosed in a rectangle formed by the four lateral eyes. The superior spinners are very long, three-jointed; the tarsi

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1) σφήξ, wasp.

2) "Ἰδμων, proper name (ἴδμων, skilful). — *Idmonea* Lamour. [Polypi] 1821.

3) θήρειος, *ferinus*, savage, brutal.

4) "κλωστής, *qui stamina digitis torquet*": Menge (κλώθω, spin).

are armed with three claws, as in *Nemesia (Cteniza);* the superior claws are pectinated. — Conf. Menge, Ueber einen Scorp. u. zwei Spinn. im Bernstein, p. 6, 7.

k. *Thomisoidæ.* We assign to this family:

Clythia K. et B. 1854 [1]). The eyes are placed in two parallel rows curved backwards; the four anterior eyes are small, equal in size, the posterior four much larger, also equal in size. The legs are rather strong, not much longer than the body, armed with spines on the underside of the tibiæ and metatarsi; the tarsi are thick, with long, pectinated claws. — In its general appearance and the structure of the tarsi these spiders are, according to Menge (Koch and Ber., p. 46), more intimately related to *Ocypete (Heteropoda, Sparassus)* than to the *Theridioidæ*, to which family he however in Lebenszeich., p. 7, reckons them, as also Koch had done (Koch and Ber., p. 94). — Type: *C. alma* K. et B., l. c., p. 45.

Athera Menge 1854 [2]). "Long and slender, the anterior central eyes small and close together, the posterior central eyes more than double as large, far apart; on each side of the last are the large lateral eyes. *A. exilis.*" (Koch and Ber., p. 94). — Nothing more is known of the genus, which in Lebenszeich., p. 9, is taken up among the *Thomisoidæ.*

Opisthophylax Menge 1856 [3]). Of this genus Menge only says: "Eyes as in *Philodromus*, but the posterior central eyes are very large and looking forwards, and the posterior lateral eyes placed far backwards. *O. exarata.*" (Lebenszeich., p. 9).

Syphax K. et B. 1854 [4]). This genus is nearly related to *Xysticus.* The pars cephalica is large and broad; the two anterior central eyes are exceedingly small, the two posterior larger, farther apart; the anterior lateral eyes are very large. The row formed by the 4 anterior eyes is curved slightly backwards or almost straight, the posterior row is curved more strongly backwards. — Type: *S. megacephalus* K. et B. — Conf. Koch and Ber., p. 77.

The now existing genera *Heteropoda* [*Ocypete* Koch, *Oxypete* Menge], *Artanes [Artamus]*, *Philodromus* and *Misumena* (? — "*Thomisus*" Menge) have also representatives among the amber spiders.

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1) Perhaps = *Clytia*, mythol. proper name. — *Clytia* is a name already many times appropriated. [*Clytia* Lamouroux [Polypi] 1812; *Clytia* Hübn. [Lepidopt.] 1816, etc.].

2) "*ἀ-θήρ, non fera et venenata*": Menge. (*ἄθηρος*, without chase, game).

3) *ὄπισθεν*, behind; *φύλαξ*, guard; "*retrospiciens*": Menge.

4) *Σύφαξ*, proper name.

l. ***Archæoidæ*** *[Archæidæ]* K. et B. This family has been created by Koch for the remarkable genus

Archæa K. et B. 1854 [1]). The large head is much and, in general, spherically elevated above the pars thoracica, which is narrower behind. The eyes are arranged in two rhomb-like groups, one on each side of the head. The mandibles are strong, often very elongated, with a long claw. The palpi are uncommonly small and slender, especially in the female. The legs are rather long and slender, prop. 1, 2, 4, 3. — Type: *A. paradoxa* K. et B. — Koch considered this genus not to be related to any other known spiders; Menge first (in Koch and Ber., p. 22) believed it had most affinity with *Tetragnatha:* the form of the legs as given in Koch's figures, reminds one in fact much of that genus and of *Pachygnatha*, which latter genus some species also resemble in their large, diverging mandibles. But in Lebenszeich., p. 9, Menge refers *Archæa* to the *Laterigradæ* (*Thomisida* Menge), on account of the form and direction of the forelegs (which is said to be the same as in the *Laterigradæ*) and of the short and slender posterior legs. The position of the eyes is quite the same as in *Platythomisus* Dolesch. (vid. sup., p. 170). I therefore place *Archæa* among the Laterigradæ; but this genus may perhaps for the present best be taken as the type of a separate family, distinguished by its ovate cephalothorax with the curiously formed pars cephalica, by the extraordinarily small palpi, and the large mandibles. — Conf. Koch and Ber., p. 19—22.

m. *Lycosoidæ.* By Menge the following genus is referred to the Lycosoidæ, of which family no more representatives appear to have been found in amber:

Linoptes Menge 1854 [2]). Nothing more is said of this genus, than that it has a slender body, long legs, long and slender abdomen and eyes resembling those of *Lycosa.* — *L. oculeus* Menge. Vid. Koch and Ber., p. 94; Lebenszeich., p. 8.

n. *Eresoidæ.* Two species of the genus *Eresus.*

o. *Attoidæ.* To this family several species belong, which are described in Koch and Ber. under the generic names of *Phidippus* and *Leda.* The genus *Leda* appears to be founded on a damaged specimen, and cannot therefore be retained; moreover the name is already appropriated [3]). The species which Koch reckons to *Phidippus*, do *not*, according to Menge,

1) ἀρχαῖος, primitive, ancient.
2) λινόπτης, guarder of a net.
3) *Leda* Schum. [Moll.] 1817.

belong to that still existing, exotic genus. Menge creates for them — with the exception of one species, which he assigns to *Euophrys* C. Koch (*Attus* (Walck.) nob.) — a new genus:

Gorgopis Menge 1854 [1]). This genus, which is said to be nearly related to *Euophrys* C. Koch (*Attus* nob.), appears to be characterized principally by having the small eyes of the 2nd series placed at a *very* short distance behind the anterior lateral eyes; they are also somewhat less distant from each other than are the two eyes of the 3rd row. The fourth pair of legs is longer than the others. — Type: *G. frenata* (K. et B.). — Conf. Koch and Ber., p. 93).

Propetes Menge 1854 [2]). Of this genus Menge only says that it differs from the genera, into which Koch has resolved Walckenaer's *Attus*, by having the eyes of the 2nd row but slightly smaller than those of the 3rd row, and larger than in now living species. — Type: *P. felinus* Menge. Vid. Koch and Ber., p. 93.

One species of Koch's exstinct *Phidippi*, is, as we have already said, by Menge referred to *Attus*, or *Euophrys* Menge; in Lebenszeich. (p. 9) that name is however not mentioned, but instead of it: "*Salticus* 1 sp."

Lastly I ought to cite the genus:

Mastigusa Menge 1854 [3]), whose affinities are entirely unknown: of the only mentioned species, *M. acuminata* Menge, it is stated that the male has on its palpi "flagella which are curved backwards in form of a ram's horn (widderhorn-ähnlich nach hinten gebogenen Geisseln) and are almost as long as the body." Vid. Koch and Ber., p. 94.

Three more genera *Onca*, *Epeiridion* and *Ocia* are mentioned by Menge (Koch and Ber., p. 8 and 24; Lebenszeichn., p. 8), but they are not at all characterized. The two former are said to belong to the *Epeiroidæ*, the last named is taken up among the *Thomisoidæ*.

I beg here to express my grateful acknowledgement to those Arachnologists who, since the printing of this treatise was commenced, have assisted me by the communication of valuable information or specimens of interesting species. In addition to the gentlemen named in pp. 2 and 3,

1) γοργῶπις, fierce-looking.
2) προπετής, rash, hasty.
3) μαστιγόω, whip, scourge.

I beg with thankfulness to mention Mr E. SIMON, Prof. A. MENGE, Prof. E. GRUBE, Prof. R. LEUCKART, Prof. J. G. SCHIÖDTE, and more especially the Rev. O. P. CAMBRIDGE, through whose kindness I have had the opportunity of examining a large number of English Spiders.

ADDENDA.

Pag. I—XXIV:

1869. BARTA, E., Verzeichniss der Spinnen des nördlichen Böhmens. (Archiv für die Naturwissenschaftliche Landesdurchforschung von Böhmen, Bd I).

BERENDT, Vid. KOCH and BERENDT.

1865. BERGSOE, V., Iagttagelser om den Italienske Tarantel og Bidrag til Tarantismens Historie i Middelalderen og nyere Tid. (Naturhist. Tidskrift, 3 Række, Bd III).

1869. CAMBRIDGE, O. P-., Part I. of Catalogue of a collection of Ceylon Araneidea lately received from Mr J. Nietner, with descriptions of new species and characters of a new genus. (The Linnean Society's Journ., Zool., Vol. X).

1869. —ID.— Descriptions and sketches of two new species of Arancidea, with characters of a new genus. (*ibid.*).

1868. HENTZ, M., and SCUDDER, S. H., Supplement to the descriptions and figures of the Araneides of the United States by Nicholas Marcellus Hentz. Edited by Samuel H. Scudder (Procced. of the Boston Society of Natural History, Vol. XI).

1854. KOCH, C. L., and BERENDT, G. C., Die im Bernstein befindlichen Crustaceen, Myriapoden, Arachniden und Apteren der Vorwelt. Berlin 1854. [*With additions by* A. MENGE]. — *Also with the title:* Die im Bernstein befindlichen organischen Reste der Vorwelt, gesammelt, in Verbindung mit Mehreren bearbeitet und herausgegeben von G. C. BERENDT. Bd I. Abtheil. II: Die im Bernstein befintlichen Crustaceen, Myriapoden, Arachniden und Apteren der Vorwelt.

MENGE in KOCH and BER., Vid. KOCH and BERENDT.

SCHIÖDTE, J. C., Specimen Faunæ subterraneæ, Vid. (p. XX) ID., Bidrag til den underjordiske Fauna.

SCUDDER, Vid. HENTZ and SCUDDER.

1835. WESTWOOD, J. O., [*Gastracanthus*:] (Transact. of the Entom. Soc. of London, Vol. I. Proceed.).

Pag. 54, lin. 25:

(The *Zilla montana* of Westring we propose to call *Z. Strœmii*, in memory of the Norwegian Zoologist H. Strom).

Pag. 65 (after *Uloborinæ*):

In a paper recently published (Descr. and sketches of two new spec. of Aran. etc.), Cambridge has given descriptions and figures of a highly remarkable genus from Ceylon, *Miagrammopes* Cambr., which as he, no doubt rightly, thinks, is most nearly related to *Uloborus* and *Hyptiotes* (*Mithras*). What in the first place gives this genus a peculiar interest, is the circumstance of its having *only four eyes*, placed in a transversal row across the pars cephalica; so that now a veritable four-eyed spider is at last discovered! (Conf. p. 28, note 1). But *Miagrammopes* is still more remarkable by the *absence of a separate sternal plate*, the legs being simply articulated to the lower side of the cephalothorax, which forms the sternal surface. This unique character would perhaps warrant the formation of a special family within the sub-order Orbitelariæ for the genus in question; but in every other point of systematical importance it appears to me to agree with the *Uloborinæ*. — Two species, *M. Thwaitesii* and *M. Ferdinandi*, are described and figured.

Pag. 81 (in the *Syn.* of *Linyphia*):

1845. Meta C. Koch (*ad part.:*) Die Arachn., XII, p. 130.

Pag. 85 (in the *Syn.* of *Erigone*):

1830. Linyphia Sund., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1829, p. 211 (*ad partem*).
1834. Theridium Reuss, Zool. Misc., Arachn., (*ad part.:*) p. 222 (228).

Pag. 86 (in the *Syn.* of *Walckenaera*):

1830. Linyphia Sund., Sv. Spindl. Beskr., *in* Vet.-Akad. Handl. f. 1829, p. 211 (*ad partem*).
1831. Theridium Hahn, Die Arachn. I (*ad part.:*) saltem p. 91, 92, Tab. XXII, fig. 69, 70. — Monogr. Aran., 6, Tab. IV, fig. *C.*

INDEX.

The names printed in *Italics* are *Synonyms*.

ERRATA.

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